CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

PRINCIPAL EFFECTIVENESS IN
CALIFORNIA PUBLIC ELEMENTARY SCHOOLS

A Dissertation submitted in partial fulfillment of the requirements
For the Doctor of Education Degree in Educational Leadership

by

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Dedication

To my mom, Ann, for all the love and support you have given me while I have been in school for the past 47 years, especially the last three years with this dissertation. I know dad would be very proud of my work.

To my wife, Stephanie, my constant supporter and friend; and to Jesse and Jenny, who continually amaze me with their abilities, talents, and character. Each of you add to the joy every day and are truly a gift.
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ABSTRACT

PRINCIPAL EFFECTIVENESS IN
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by
Stephen Brian Bluestein
Doctor of Education Degree
in Educational Leadership

The purpose of this quantitative study was to determine what relationship exists between leadership practices of elementary school principals and student academic outcomes determined from standardized test scores. Data was drawn from the California Standards Test (CST), correlated with principal data from the Schools and Staffing Survey (SASS). Results revealed a correlational relationship between leadership practices of elementary school principals and student academic achievement. Implications are that the current emphasis on transformational and transactional leadership models for improving school leadership and student academic outcomes is valid.
Chapter I: The Problem

The success of any school organization can be measured by the successes of its learners. For elementary schools, results of standardized testing serve as a measure of the schools’ success and organizational effectiveness (Center for Public Education [CPE], 2005). While academic-related outcomes have been tied to a variety of factors, such as cultural issues, parental involvement, communication of expectations, implementation of high standards, and mentoring (Redd, Brooks, & McGarvey, 2002), the overarching determinant factor might be the principal leadership (Rost, 1993). Literature on the success of schools continually supports the principal as the key factor in the rise and decline of quality education, which in 2011 in California is distilled into one number issued every August, the academic performance index (API). Researchers have found for decades that the making of a productive school is directly linked to the quality or effectiveness of the principal as measured by student achievement (DuFour, R. & Marzano, R., 2009; City, E., Elmore, R., Fiarman, S., & Teitel, L., 2009; Caldwell, 1992; Drake & Roe; Duke, 1987; Edmonds, 1979; Raids & Highsmith, 1986). Thus, the position of the principal can support or hinder the making of a successful or flourishing school. Many empirical studies come to the conclusion that principals’ leadership can make a difference in student learning (Bossert, Dwyer, Rowan, & Lee, 1982; Goldring & Pasternak, 1994; Hallinger & Heck, 1996; Heck, Larson, & Marcoulides, 1990; Heck & Marcoulides, 1992; Knuth & Banks, 2006; Leithwood, Louis, Anderson, & Wahlstrom, 2004; Marcoulides & Heck, 1993; Marzano, Water, & McNulty, 2005; Owings, Kaplan, & Nunnery, 2005; Waters & Kingston, 2005). However, many studies on the effects of principals’ leadership are primarily correlational. There is an urgent need to study the
principalship and how the principal leader of the school has an impact on improving student learning, and student academic outcomes. Many schools are failing under the present accountability system and principals’ leadership has been an under-utilized tool for school improvement.

Many researchers have discussed the principalship in terms of leadership skills. Almost as far back as twenty-five years ago, Duke (1987) described the effectiveness of the principal as the leadership skills he or she exhibits in a variety of situations encountered on a daily basis. These encounters constitute the experiences of the principal that allow him or her to meet the needs of the school by promoting and utilizing sound educational practices, and thus increasing student achievement.

Persell (1982) addressed effective principals in relation to their behaviors, including demonstrating a commitment to academic goals, creating a climate of high expectations, functioning as an instructional leader, being forceful and dynamic, consulting effectively with others, creating order and discipline, marshaling resources, using time well, and evaluating data. Still other researchers believe that the extent to which principals utilize instructional leadership is the most critical factor in creating an effective school (Burch, D. & Spillane, J., 2009; Drake & Roe, 1994; Duke, 1987; Fullan, 1993; Hall & Hord, 1987; Marsh, 1992; Murphy, 1994). Instructional leadership implies that a principal is monitoring, training, and changing the instruction at the site level. Krug (1993) believes that the only way principals can effectively lead the instruction at the site is by working with other people. Working with people involves communication, motivation, socialization, culturalization, and team building (Camburn, E., Rowan, B., & Taylor, J., 2003; Drake & Roe, 1994; Hall & Hord, 1987; Krug, 1993).
The role of the principal as instructional leader and manager is multifaceted and complex. The principalship requires a person that possesses a number of skills and fills numerous roles including, but not limited to, manager of people and resources, instructional leader, teacher supervisor, parent educator, disciplinarian, enforcer of district rules and obligations, negotiator, and facilitator of change. As a manager, he or she must possess the skills or talents to effectively supervise the daily workings of the school and staff. Additionally, an instructional leader must guide and focus the staff’s attention on goal attainment through the change process.

The importance of leadership in schools is generally accepted and has been discussed significantly in the literature. Witziers, Bosker, & Krüger (2008) cited research conducted over the last 25 years in which it was concluded that the educational leader directly affected student achievement. Bottoms and O’Neill (2001) noted that school leaders were “expected to perform in the role of ‘chief learning officer,’ with ultimate responsibility for the success or failure of the [educational] enterprise” (p. 5).

**Statement of the Problem**

If research on the principals’ effects on student achievement is to provide useful information to practicing principals and superintendents, studies must be conducted which take into account both the mediating variables, as well as the antecedent and exogenous variables specific to each school. Antecedent variables include the variables which may influence student achievement that occur prior to the principal’s actions to influence variables within the organization. Exogenous variables are those variables introduced outside of the organization that impact student outcomes over which the
principal has little to no control. Given the enormity of the task of considering all antecedent variables, Hallinger & Heck (1996) suggest that, “researchers should focus greater attention on uncovering the relationship between principal leadership and those mediating variables that we now believe influence student achievement” (p. 35-36). Mediating variables found in research to have positive influences on student achievement are the school’s vision and mission, teacher’s pedagogical and content knowledge, and teacher instructional practices. Each of these factors contributes to or is influenced by, the overarching factor identified in the literature as “school culture.” Therefore, the problem presented for study in this dissertation is to carefully model the relationship among principal effects on student academic outcomes by considering a system of interrelated factors that include mediating and exogenous factors. This will allow school leaders to examine the relative strength of school culture in determining the level of student achievement and may provide principals with an area of focus that will lead to improved teacher effectiveness and higher levels of student achievement. Thus, the problem is to carefully model the relationship among principal effects on student outcomes by considering a system of interrelated factors that include mediating and exogenous moderating factors.

**Purpose of the Study**

This study examines the relationship between principal leadership practices as mediated through student achievement, and the role of that school culture plays in this equation. Since school culture can not be measured directly by student outcomes, principal leadership will be measured from variables from the School and Staffing Survey (SASS),
looking at both variables of attributes that explore principal leadership, and from the SASS teacher files where teachers have responded to questions about their principal. More specifically, this dissertation seeks to establish an effect size of school culture on student achievement at the kindergarten through fifth grade level in public schools in California. Using two nationally represented datasets to link principal, teacher, and student information to test the relationship, this study examines the effect of the principalship as identified in the review of literature to determine the overall effect on student achievement based on pertinent student accountability results.

Results from the study will be discussed in relation to the elements of school culture gathered from previous research studies included in the review of literature as well as data contained in the SASS. The impact and influence of principal leadership on student achievement has been a focus of researchers for many years, leading to numerous studies seeking to establish correlations between leadership and student achievement. These studies provide existing data related to leadership and the identified cultural elements. Through the use of appropriate data analysis techniques, this study will examine the findings of researchers in the 11 years since the signing of Goals 2000— the National Education Goals that were set by the U.S. Congress in the 1990s to set goals for standards-based education reform (Many of these goals were based on the principles of outcomes-based education, and not all of the goals were attained by the year 2000 as was intended. This was the predecessor to No Child Left Behind (ESEA/NCLB) which mandated measurable improvement in student achievement across all groups, and it is true that NCLB is the reauthorization of the Elementary and Secondary Education Act (ESEA) Title 1 program that existed long before Goals 2000.) Goals 2000
established a framework in which to identify world-class academic standards, to measure student progress, and to provide the support that students may need to meet the standards—relative to the impact of school culture on student achievement as measured by standardized achievement testing. Currently, researchers, practitioners, and the public are paying attention the impending reauthorization of ESEA/NCLB, and the incentive program called Race to the Top (RTT), the $4.35-billion program designed by the United States Department of Education to spur reforms in local K-12 education. One of the four tenants of RTT is holding teachers and principals accountable for student performance in even a more specific way than NCLB did (which is still under development by policy leaders and researchers at this time).

**Significance of the Problem**

The importance of education within our society is an unquestioned necessity. Compulsory education laws requiring school attendance were first introduced in the United States in 1852, and by 1918, a minimum of an elementary school education for all children was required in every state (Walberg, 2007). The great body of literature devoted to educational and principal effectiveness reinforces its fundamental significance. For instance, Redd (2002) has said that children who did well in school were more likely to graduate from high school and college and that educational performance were directly and positively related to financial successes later in life.

The most effective administrator and principal attributes and styles in terms of how they influence student academic outcomes have not been adequately studied or understood (Albanese, 2003; Harris, 2004; Marley, 2003; Storey, 2007). Previous work
in this area can be found, but they all look at the direct relationship linkages between the principal and culture, or look at linkages involving culture and student outcomes. There has been no study thus far that has taken this systematic approach at looking at principal leadership on student achievement, as mediated through culture (in other words, principal leadership, connected to school culture, and linked to student academic achievement).

Principals are under a great deal of pressure to improve student performance, with the goal of having all children on grade level by the year 2013-2014 (U.S. Department of Education, 2004). A good teacher has been said to be the most important factor that affects student learning and progress (Geringer, 2003). Research indicates that school leadership, although indirect, is second only to teaching in its impact on student performance (Larry, 2006; Leithwood et al, 2004; Leithwood et al, 2006).

The findings of this study may be used by state educational leaders and policy making officials to evaluate current systems of evaluation for principals and other school level administrators. Findings from this study may provide additional validation for the inclusion of certain leadership practices, especially those related to school culture, in the evaluation instrument of school level administrators. Conversely, if findings indicate the lack of a correlation between school culture and student achievement, it may indicate the need to exclude specific items not related to improved student performance from evaluation instruments.
Research Question

Do principals significantly impact school performance during the initial years of their principalship at a school?

a. Is there significant variability in the impact of principals during the initial years of their principalship at a school?

b. Is the variability in effectiveness associated with the impact of school principal management behaviors, accounting for principal and school concomitant variables?

c. Is the variability in effectiveness associated with the impact of school principal instructional behaviors, accounting for principal and school concomitant variables?

Hypothesis

Using appropriate data analysis techniques, this study will establish a relationship between the principal’s leadership and student achievement. As a standard of practice, the null hypothesis established assumes that there will be no correlation between principal leadership and student achievement. The research hypothesis states that the body of research will show an effect between principal leadership and student achievement data.

Delimitations and Limitations

One of the limitations of this study is lack of generalizability. This study will only generate information from California students. Will information gathered from this
study have the ability to be transferred to an understanding of how Nevada or Hawai’i principal effectiveness compares to California? Are student academic outcomes in other states comparable to California students, in terms of linking principal effectiveness? These are questions that will not be answered in this study, as the study will only be California student achievement outcomes and California public elementary school principals. This focus may have resulted in the elimination of some meaningful studies focusing on schools in other states and countries.

Inclusion of additional studies could possibly have influenced the examination found in the analysis pertaining to school culture. In addition, the analysis in this dissertation did not significantly include qualitative studies, although qualitative studies were examined in the review of the literature.

An additional limitation that was considered is that the use of school accountability data from the California Standards Test as the measure for student achievement presents only a partial view of overall student achievement. Other studies may use a more comprehensive definition of student achievement and teacher effectiveness as illustrated in the literature review. However, in the current age of accountability, the focus on student achievement is consistent with the expectations placed on principals and teachers as a measure of effectiveness. Another limitation related to accountability data is the fact that each state uses its own tests and sets its own proficiency levels. This could create a problem in making state-by-state data comparisons. By focusing on correlations found in existing research, the analysis did not examine the differences between state accountability models.

An additional and noteworthy limitation is the use of the California academic
performance index (API) in looking at school academic achievement. The API, while very informative in ranking and rating schools, is nonetheless a composite weighted scale that has its own shortcomings. Indeed, other school measurement ideas, such as the value-added measure—which looks at each student's past test performance and uses it to project his or her future performance; the difference between the child's actual and projected results is the estimated “value” that the teacher or school added (or subtracted) during the year—can provide somewhat different data, and thus somewhat different academic outcome data.

Finally, the focus on school culture produced some limitations for the study. By limiting the studies to the elements of school culture and the definition of school culture in this study, this definition of “school culture” posits and proxies culture to define many areas of this study. Other researchers may indeed define school culture differently, and this could lead to alternate conclusions. It is not the intent of this study to analyze all leadership rather to determine the linkages of school culture and each identified dimension of principal leadership and student achievement.

 Definitions of Terms

For the ease of understanding, it is important to define the terms which appear frequently in this dissertation.

School Culture

Refers to the elements necessary in transmitting knowledge from one group of people to another. It contains belief systems, morays, patterns of behavior, and modes of
communication all found in businesses and educational programs to date. “Corporate cultures have a bedrock of values that lie therein” (Deal & Kennedy, 1982, p. 21).

Schoen & Teddlie’s (2008) Dimensions of Culture talk about the analysis of school culture and its effect size on student achievement. These four dimensions include, (1) professional orientation, (2) organizational structure, (3) quality of the learning environment, and (4) student-centered focus. The Center for Improving School Culture (2004) summarizes school culture as defined by Deal & Peterson (1993) and Robbins & Harvey (1995) as the “inner reality” that, “reflects what organizational members care about, what they are willing to spend time doing, and how they celebrate, and what they talk about” (p. 1).

Protégé/ or Mentee
A protégé/mentor is an individual who has been recognized by someone in a leadership position as having the abilities to surpass his or her current level of responsibility.

Demographic Variables
These variables include sex, age, race, past experience, size of school, level of school, and information indicative of principals.

Instructional Leader
According to Johnson and Snyder (1986), the principal must be an instructional leader—that is, one who engages in activities, discussions, and planning to promote school-wide characteristics that will enhance curriculum and instruction for the benefit of increasing student achievement—becoming an effective school.

Beginner/Novice Principal
Refers to a rookie, a new principal, or a newly placed principal who requires the
assistance of another person in order to perform his/her duties successfully (Anderson, 1988; Andrews, 1989; Gold, 1990).

**Student Achievement**

Student performance outcomes as measured and reported on standardized test and/or state and federal accountability assessments in accordance with state and federal accountability models. Student achievement is the quantitative measure of principal effectiveness in this study.

**Mediating factor**

Those variables through which principals impact student achievement. Hallinger & Heck (1996) describe a mediated effects model which assumes that some or most of the principal’s impact on student learning and other school outcomes happens through the manipulation and interaction of the leader with the features of the school organization.

**Leadership styles**

General categories of leadership based on specific leadership practices, individual characteristics, and interaction between the principal and the school staff. Leadership has been defined in the literature as transformational, situational, or contextual.

**Vision and mission**

The clear, well articulated, and shared beliefs of the school now and in the future. The vision and mission serve as the impetus of force for decision making within the school.

**Teacher Effectiveness**

No clear, quantitatively measureable definition of teacher effectiveness is agreed upon by most researchers. Therefore, teacher effectiveness will be measured and equated with student/s
Principal Effectiveness

No clear, quantitatively measureable definition of principal effectiveness is agreed upon by most researchers. Therefore, principal effectiveness will be measured and equated with student/school achievement for the purposes of this study.

Organization of the Dissertation

The chapters in this dissertation are arranged in the following order: Chapter 1 has presented the introduction, a statement of the problem, the purpose of the study, research questions, significance of the study, assumptions, limitations, delimitations, and definition of terms.

The second chapter consists of a comprehensive review of the literature on the influence of principal leadership, mediating factors influencing student achievement outcomes, school leadership issues, and school culture.

Chapter 3 describes the methods followed in the study. It contains the procedures used for generating data and the data analysis.

Chapter 4 describes each question of relevance to the research and provides a description of the findings. The acceptance or rejection of the null hypothesis is discussed based on the findings of the study. Other descriptive findings are found within data tables, which have been prepared using frequencies and percentages, which allow the reader to easily examine the data. In addition, tables provide a pictorial look at differences in gender, age, and ethnicity of both the respondents and those serving as their mentors.

Chapter 5 contains a summary of the study, its findings, conclusions, and some
general recommendations. The limitations of the study and implications for further research will be discussed. The dissertation then provides a list of references of all citations for the studies used in the process of completing the analysis. Finally, the appendices conclude the dissertation by providing additional information relevant to the study not found within the body of the report.

Summary

The accountability movement in the United States has increasingly placed school leadership in the forefront of attention by both researchers, educators, and the public. Principals are the first to be held accountable for the failure of a school to meet state and/or federal accountability measures (Herman, 2008; Miller, 2009). To wit, it is essential that the most effective leadership practices be found with a focus on the mediating factors which have the greatest impact on student achievement outcomes. This study will examine the effect that principal leadership has on scholastic outcomes, and further what effect a change in principals has on scholastic outcomes. It is important to note that this study in no way looks at when it is time for a superintendent or school board to change principals.
Chapter II: Review of the Literature

Public schools typically do the best that they can with the myriad of learners with which teachers must contend given the limited resources allotted by local, state, and federal governments (Prestine, N., & Nelson, B., 2005). Ex-President George W. Bush’s educational reform strategic plan—No Child Left behind Acts of 2001—even states “… these reforms express my deep belief in our public schools and their mission to build the mind and character of every child, from every background, in every part of America” (NCLB, 2008). However, as Ex-President Bush also states, “… too many children in America are segregated by low expectations, illiteracy, and self-doubt,” (p. 1) which really asks the principals and leaders of schools, why are children being left behind in the most affluent country in the world, and the most-technologically advanced period in the world (2010).

Very little research has examined the area of principal effectiveness in elementary schools on California, when linked to student academic outcomes, and school culture. This chapter reviews the relevant scholarly literature related to the impact of principal leadership on student academic outcomes through school culture. Specifically, this review focuses on a principals’ role as a manager and instructional leader and how this fosters a culture of collaboration and student centered instruction. The review also summarizes results linking elements of school culture to student outcomes. It is through this lens that the reader can ask how any child can be left behind.

The questions of what makes principals effective and which principal behaviors—instructionally and operationally—are most consistent with school effectiveness have generated scholarly inquiry in recent years, with two approaches to principal leadership
emerging as most dominant in the literature: instructional leadership and transformational leadership. Instructional leadership theory largely focuses on the principal’s role in framing the school’s mission, coordinating and monitoring the school’s instructional program, and developing a positive learning culture (Mangin, 2007; Hallinger & Murphy, 1985). In contrast to that, transformational leadership theory (Stein & Nelson, 2003; Bass, 1998; Burns, 1978) emphasizes collaboration with stakeholder groups, with particular emphasis on the role of the principal in inspiring and motivating the staff, developing commitment to a common vision, building the staff’s capacity to work collaboratively, and shaping the organizational culture.

An emphasis on the teaching and learning aspects of school leadership is characteristic of the instructional leadership literature. This literature generally says that with a strong, directive principal, focused on curriculum and instruction, the school will be more effective. Thus, a large body of the literature says that principals make a difference in student learning (Bossert, Dwyer, Rowan, & Lee, 1982; Goldring & Pasternak, 1994; Hallinger & Heck, 1996; Heck, Larson, & Marcoulides, 1990; Heck & Marcoulides, 1992; Knuth & Banks, 2006; Leithwood, Louis, Anderson, & Wahlstrom, 2004; Marcoulides & Heck, 1993; Marzano, Water, & McNulty, 2005; Owings, Kaplan, & Nunnery, 2005; Waters & Kingston, 2005).

While the focus on instructional leadership waned a bit in the 1990s as transformational leadership received greater scholarly attention, interest in instructional leadership in the academic literature appears to have increased by the accountability and school improvement movements, which have reemphasized the role of the principal in facilitating quality instruction and school efficacy in schools (Hallinger, 2005).
Academic scholars have made the case for other approaches as well, such as Mark & Printy’s (2003) “integrated leadership” approach, which combines instructional leadership, transformational leadership, and operations. This research concludes that effective schools are the ones in which all three models coexist.

This study departs somewhat from this emphasis and orientation that effective principals have to be either in the instructional leadership area, or in the transformational leadership arena. Instead this study focuses on principal (1) instructional leadership, and (2) managerial practices, that link to student academic achievement, as seen through the lens of school culture.

An amalgamation of the literature on the relationship between school leadership practices and student outcomes was conducted by Waters, Marzano, and McNulty (2003) and Cotton (2003), where they synthesized 70 research studies relating principal leadership to student achievement that were conducted from the early 1970s through the early 2000s. The studies they examined looked at a wide array of leadership responsibilities, including a focus on school culture, faculty motivation, instructional support, and emphasis on accountability. They produced effects sizes for each of the different dimensions of leadership that were examined. Across these distinct studies, they found an average effect size of .25 and concluded, “there is, in fact, a substantial relationship between leadership and student achievement” (p. 3). These are quality synthesizes of the literature on the relationship between principal leadership and student achievement. However, meta-analyses use original studies as data sources and, therefore, have requirements for the kind of studies that are included in the meta-analyses. Meta-analyses have limitations in terms of what studies are included.
Witziers, Bosker, and Kruger (2003) conducted a quantitative meta-analysis of studies that looked at the overall effects of school leadership on student learning as well as studies that examined the impact of specific principal behaviors on student outcomes. They found small direct effects across studies of elementary school principal leadership but no measurable direct impacts of secondary school principal leadership. They found larger effects, although with more variability, in studies of more specific leadership behaviors.

A more holistic analysis of a wide range of leadership literature was conducted by Leithwood, Seashore Louis, Anderson, and Wahlstrom (2004). These researchers developed a theoretical model of how leadership at dissimilar levels of the education system (state, district, other stakeholders) influenced school leadership, which interacted with school and student conditions to produce student outcomes. Through a fusion of both the quantitative and qualitative studies of these factors, they concluded that school leadership “is second only to teaching among school-related factors in its impact on student learning” (p. 5). One particular empirical study of principal leadership was quite interesting, because of both its focus and the methods it employed. Hallinger, Bickman, and Davis (1996) examined the relationship between principal leadership and student reading achievement using structural equation modeling (SEM). SEM allowed them to simultaneously test the independent effects of multiple antecedent and intervening variables. They found no direct effects between indicators of principal leadership and student performance. Interestingly, the researchers then explored the ways that school and classroom variables mediated the relationship between principal leadership and student achievement. They found that principal leadership significantly predicted
variables of instructional climate and instructional organization and that those variables were positively and significantly related to student achievement. Yet, the entire educational and instructional climate of 1996, is completely different than the accountability, value-added, data-driven environment of 2011.

This study looks at substantial prior research on the impact of principal attributes or skills on organizational outcomes, such as student academic achievement. Marcoulides, Larson, & Heck (1995) tested a structural model on instructional leadership using data on 21 tasks from 140 principals in Texas with the goal of developing an instrument for evaluating principal effectiveness and performance. This model does not take into account school culture, but is nevertheless relevant to this study. As early as 1992, Heck lined data from principals and teachers to school performance, using ratings of principals’ performance in three domains: governance, school climate development, and organizing the school’s instructional program. Heck found that some principal behaviors, such as making frequent classroom visits, are more predictive of principal effectiveness and school effectiveness than others.

Another approach found in the literature is that from Porter, Goldring, Murphy, Elliott, & Cravens (2007), where they looked at the Vanderbilt Assessment of Leadership in Education (VAL-ED) to access the effectiveness of specific educational leadership behaviors, using self-ratings by principals as wells as ratings by teachers in their school and supervisors. The leadership behaviors assessed in their instrument intersect at the crux of school performance (e.g. what leadership must do to improve outcomes), and key processes of leadership (e.g. how leadership develops these core components). While these researchers identified behaviors from prior studies of effective principals, they did
not explicitly link results from the VAL-ED assessment to increased principal effectiveness and increased school performance.

Even outside the field of education in the private sector, studies have used a similar assessment strategy to examine the influence of organizational leaders on outcomes. For instance, Bloom and Van Rennen (2007) use cross-national interview and survey data to measure management practices of plant managers in a variety of companies. They found that more highly-rated organizational management practices are associated with long-run firm sales and profitability. Kaplan, Klebanov, & Sorensen (2008) use detailed data from tests given to candidates for top chief executive officer (CEO) positions in private equity investment companies by an outside assessment firm to link job skills to hiring and company performance.

In education, Marzano, Waters, & McNulty (2005) and Cotton (2003) conducted a large meta-analysis six years ago on the topic of principal effectiveness. There have also been many studies in the field that were not addressed or covered by this meta-analysis and yet are noteworthy in the present review of the literature. Ideas such as the integration of transformational and shared instructional leadership (Marks & Printy, 2003), collective efficacy (Goddard, 2001; Goddard, Hoy, & Hoy, 2000; Manthey, 2006), collective responsibility (Lee & Smith), culturally relevant pedagogy (Boykin & Cummingham, 2001; Dill & Boykin, 2000; Ladson-Billings, 1994, 1995a, 1995b, 1998), instructional program coherence (Newmann, Smith, Allensworth, & Bryk, 2001), professional community (Louis, Marks, & Kruse, 1996; Marks & Louis, 1997), social trust (Sebring & Bryk, 2000), and organizational learning (Mark, Louis, & Printy, 2000) are those articles not included in the Marzano meta-analysis. By utilizing the research
findings from these empirical studies, the literature review reflects leadership that are empirically related to higher student achievement.

School leaders’ influence on teacher retention has long been recognized by researchers (Brown & Wynn, 2009; Guarino, Santibañez, Daley, & Brewer, 2004; Boyd et al., 2009). Recent work also suggests principals can influence attraction and retention of teachers (Milanowski et al., 2009; Goldhaber, DeArmond, & DeBurgomaster, 2007), and in doing so making the principal more effective in his/her school. This “principal as manager of the schools.” With the exception of a few studies (Smylie & Wenzel, 2007; DeArmand, Gross, & Goldhaber, 2008) there has been relatively little research explicitly focusing on some aspects of the principal as the manager of the school, and thus influencing school effectiveness. In particular, there is not much research on if or how school leaders use human resources practices systematically to build or maintain an effective faculty, how their efforts mesh with district programs and strategies, and whether differences in practices matter to school performance. This principal as school manager challenge has increasingly been recognized by researchers and policy advocates (National Commission on Teaching and America’s Future, 2003; Heneman & Milanowski, 2004; Smylie & Wenzel, 2006; Odden and Kelley, 2008; DeArmond et al., 2009; Hess, 2009). It has also prompted policy makers at the Federal level to provide incentives for states and districts to change teacher evaluation and compensation practices (for instance, the Bush administration’s Teacher Incentive Fund program, and the Obama administration’s Race to the Top initiative). School districts from across the United States such as Chicago, Philadelphia, New York City, and Washoe County, Nevada, have begun initiatives to improve teacher and principal quality. Los Angeles
schools will surely not be far behind in breaching the area of teacher quality with the remarks of at least one member of the Board of Education in this area, and with the *Los Angeles Times* publishing teacher value-added quality ranking for 6,000 teachers in grades 3, 4, and 5 (Flores, 2010).

In discussing the principal as the instructional leader of the school, the content provided in Table 1 presents seven key dimensions/attributes defined by Marzano and colleagues that are associated with increased student achievement. These dimensions are compared to research done by others in the field and indicates how the research is similar and dissimilar. This table resource is a framework for the literature review and the study overall.

**Table 2.0**

*Dimensions of Leadership: Marzano and Others*

<table>
<thead>
<tr>
<th>Dimensions/Attributes</th>
<th>Elements in Marzano’s Balanced Leadership</th>
<th>Elements in Other Scholarly Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspirational Agency for School Renewal</td>
<td>- Affirmation</td>
<td>- Self-efficacy (Smith, Guarino, Strom, &amp; Adams, 2006)</td>
</tr>
<tr>
<td></td>
<td>- Agent of change</td>
<td>- Self-confidence, responsibility, perseverance, rituals, ceremonies, and other symbolic actions (Cotton, 2003)</td>
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<td></td>
<td>- Optimizer</td>
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<td></td>
<td>- Flexibility</td>
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<td></td>
<td>- Intellectual Stimulation</td>
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</tbody>
</table>
- Principal leadership makes a difference when influencing internal school process such as school policies and norms, the practice of teachers, and school goals (Hallinger & Heck, 1996)
- The integration of transformational and shared instructional leadership (Marks & Printy, 2003)
- Visibility (Witziers, Bopsker, & Kruger, 2003)
- Purposes and goals (Leithwood & Jantzi, 1999)
- Encouraging teachers to take risks and try new teaching methods (Sebring & Bryk, 2000)

B:
Orderly school operation
- Order
- Communication
- Safe and orderly school environment; positive and
| Discipline | supportive school climate; communication and interaction interpersonal support (Cotton, 2003). |
| Governance (Heck, 1992; Heck and Marcoulides, 1993) |
| Planning, structure, and organization (Leithwood & Jantzi, 1999) |
| Minimize classroom disruptions (Sebring & Bryk, 2000) |

C: High cohesive, and culturally relevant expectations for students
- Culture
- Focus
- Outreach
- Ideals and beliefs
- Goals focused on high levels of student learning; high expectations of students; community outreach (Cotton, 2003)
- Climate (Heck, 1992; O’Donnell & White, 2005)
- Leadership of parents is positively associated with
student achievement
(Pounder, 1995)
- School mission, teacher
expectation, school culture
(Hallinger & Heck, 1996)
- Defining and
communicating mission;
achievement orientation
(O-Donnell & White, 2005;
Witziers, Bosker, &
Kruger, 2003)
- Culture (Leithwood &
Jantzi, 1999)
- Collective efficacy
(Goddard, 2001; Goddard,
Hoy, & Hoy, 2000;
Manthey, 2006)
Collective responsibility
(Lee & Smith, 1996).
 Culturally relevant
pedagogy (Boykin &
Cunningham, 2001; Dill &
Boykin, 2000; Ladson-
<table>
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<th><strong>D:</strong></th>
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| Coherent curricular programs | - Curriculum, instruction, assessment  
- Knowledge of curriculum, instruction, and assessment  
- Instructional organization  
- The integration of transformational and shared instructional leadership  
(Marks & Printy, 2003)  
- Supervising and evaluating the curriculum; coordinating and managing curriculum (Witziers, Bosker, & Kruger, 2003)  
- Instructional program coherence (Newmann, Smith, Allensworth, & Bryk, 2001) |

<table>
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<tr>
<th><strong>E:</strong></th>
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| Distributive and empowering leadership | - Input  
- Resources  
- Shared leadership and staff empowerment; |
- Visibility  visibility and accessibility;
- Contingent reward  teacher autonomy; support for risk taking; professional opportunities and resources (Cotton, 2003)
- Relationship  
  - Cultivating teacher leadership for school improvement; shared instructional leadership (Marks & Printy, 2003)
  - Promoting school improvement and professional development (Witziers, Bosker, & Kruger, 2003)
  - Teacher empowerment (Louis & Marks, 1997)
  - Professional community (Louis, Marks, Kruse, 1996; Marks & Louis, 1997; Spillane, Shalveson, & Diamond, 2001)
  - Social trust (Sebring &
There has also been much work on the importance of taking a systems approach to school leadership (e.g., Elmore, 2000; 2004). “Effective principals attack incoherence,” noted Bryk and colleagues (1998, p. 270). Fullan (2001) added, “Leadership cannot be captured in a checklist” (p. 149). It is systems management that helps to build coherence into a school (Glatthorn, 2000; Sebring & Bryk, 2000). For example, renewal in curriculum and instruction usually requires a redistribution of school resources (Miles & Darling-Hammond, 1998). This systems approach to school leadership is what is taught in university administrator and principal training programs, yet it often does not bridge the gap from theory to practice for the beginning principal. This is where a mentor principal that has demonstrated a sustained success in his or her previous school(s) can counsel the new principal to bridge this gap.

Principals make a difference in student learning outcomes (Bossert, Dwyer,

**Review of the Research on Effective Leadership and School Effectiveness**

Recent research has shown that the ways a principal leads makes a difference in school effectiveness efforts and results. These practices center on transformational and instructional leadership. Much research has been focused on identifying specific leadership practices that are most strongly associated with positive outcomes. Blank (1987) studied the practices of 32 urban high school principals to identify common behaviors and activities, as drawn from principal and teacher interviews. Others (Hallinger, 2005; Hallinger & Heck, 1996; Leithwood & Jantzi, 2005; Waters, Marzano, & McNulty, 2003) conducted qualitative reviews of research on leadership practices that are most strongly associated with school outcomes and improved student learning. Such research, however, is correlational with school and student outcomes and based primarily on staff survey (perspective) data. Missing is evidence based on observation data that reveal additional aspects of successful principals’ behavior in a variety of settings.

Much of the current research focuses on leaders’ mediated effects through effective work of teachers and the school as a whole. In Leithwood and Jantzi’s (2005) synthesis of existing research, such mediating effects include teacher job satisfaction, organizational commitment to purpose and change, improved teaching practices, distributed leadership, a school learning culture, quality content and instruction and
organizational learning practices and environment. In their analysis, most critical
leadership practices are setting direction (through vision, goals and expectations), helping
individual teachers (through support and modeling), redesigning the organization (to
foster collaboration and engage families and community), and organizational
management (providing organizational resources and support). The meta-analysis by
Waters et al. (2003) yielded 21 leadership responsibilities and grouped the staff and
organizational effects as school-related (curriculum, goals, parental involvement orderly
environment and collegiality), teacher-related (instruction and curriculum) and student-
related (motivation) factors. These various research analyses provide a framework and
strong case for looking at principal behavior, and resources to guide an empirical study of
what effective administrators actually do.

Other researchers have documented how principals spend their time, where, with
whom and how they share leadership responsibilities (Spillane, Camburn, & Pareja,
2007). Spillane and others documented 42 principals’ work at different time intervals, to
evaluate a leadership development program in one mid-sized city. Aggregated data
showed that principals spent 63% of their time on management matters (e.g. scheduling
and students), 22% on instruction and curriculum, 6% on professional growth (e.g. being
coached) and 9% on fostering relationships. Of over 2000 rated intervals, the principals
identified themselves as leading alone 36% of the time, co-leading 33%, and not leading
(participating) 31%. They were equally likely to be co-leading across all types of
leadership work, but most likely to be leading alone when doing management tasks.
Spillane et al. distinguish three types of distributed leadership, which they define as
collaborated distribution (in which work is stretched over two or more people and they
co-perform the same leadership routine), collective distribution (in which the leadership routine is co-performed by working separately but interdependently) and coordinated distribution (in which leadership routine activities are performed in a particular sequence). Co-performing leadership work varied widely among the schools, from 10-60% of the principals’ activities, as did who was typically involved (with teachers on instructional matters and assistant principals on management issues).

Where and How Does Effective Leadership Impact Schools?

The school improvement results that effective leadership yields is the engagement and development of teachers (Marks & Printy, 2003), staff motivation, commitment, and empowerment (Dvir, Eden, Avolio, & Shamir, 2002), engagement (Mulford & Silins, 2003), and perceived efficacy (Hoy & Woolfolk, 1993). Such leadership practices also benefit the organization as a whole by fostering shared purposes and goals, promoting a collaborative organizational culture, and using networks to leverage improvement efforts (Leithwood & Jantzi, 1999; Mulford & Silins, 2003) as well as developing program coherence (Newmann, King, & Youngs, 2000). The Mulford & Silins (2003) study found close links between school environments and improved principal effectiveness. They found that “collective teacher efficacy is a significant predictor of student achievement and principal accomplishments ... [and] is greater in magnitude than any one of the demographic controls [including SES]” (p. 500). These researchers conclude, ‘a one unit increase in collective teacher efficacy is associated with an increase of more than 40% of a standard deviation in student achievement” (p. 501). They also found that not only was higher SES directly related to greater student improvement and larger schools
produced smaller student gains, but also that schools where the principal’s leadership was rated as more supportive and directed towards instructional excellence and school improvement and the school climate was seen in positive terms “produced greater-than-expected improvements in student learning over time” (pp. 538–539).

Effective principals influence a variety of school outcomes, including student achievement, through their recruitment and motivation of quality teachers (Harris, Rutledge, Ingle, and Thompson, 2006; Jacob and Lefgren, 2005), their ability to identify and articulate school vision and goals, their effective allocation of resources, and their development of organizational structures to support instruction and learning (Brewer, 1993; Eberts and Stone, 1988; Knapp, Copland, Plecki, and Portin, 2006; Leithwood, Louis, Anderson, and Wahlstrom, 2004). Robinson, Lloyd, and Rowe (2008) conducted a recent meta-analysis of studies of the relationship between school leadership and student outcomes and concluded that the average effect of instructional leadership practices – such as, being an instructional resource for teachers – is three to four times that of transformational leadership practices – such as, sharing an inspirational vision. In contrast, Horng, Klasik and Loeb (2010) find a significant and positive relationship between spending time on organization management tasks – such as hiring staff and allocating budgets – and student outcomes. Despite a lack of clarity on how principals affect school outcomes, there is consensus that principals have a significant impact on student development and other school outcomes.

More recently, some researchers and educators have focused on the unique aspects of improving schools with challenging conditions, such as those in socio-economically disadvantaged areas (Muijs, Harris, Chapman, Stoll, & Russ, 2004). Muijs
et al.’s (2004) research review identified several common themes, including a focus on teaching and learning, effective leadership, an information-rich environment, positive school culture, and building a learning community.

Others used survey analyses to distinguish breakthrough schools—low-performing schools that perform like high-performing ones (Glidden, 1999; Watts et al., 2006; Williams, Kirst, Haertel, & et al, 2005). They confirmed the Muijs et al. (2004) themes, adding implementing a coherent standards-based curriculum and instructional program, using assessment data to improve instruction, sticking with a reform over time, tailoring strategies to individual student needs, and ensuring the instructional resources as additional features of effective principals.

Together, this research suggests that effective principal practices center on vision and fostering coherence and persistence; a focus on curriculum and instruction; developing others’ individual and collective capacity; distributing leadership and shared responsibility; and using data to monitor progress. Much research is based on teacher and principal perceptual-ratings. While a useful focus, the findings provide little insight into the actual practices that matters most or how and with whom principals enact these practices in ways that positively influence outcomes.

**Principal Development and Mentoring**

In the conversation of principal quality and effectiveness, it is almost universal knowledge that as a practical and effective matter, principal quality is a byproduct of an effective per-service, in-service, and mentoring model for new principals (Hallinger & Heck, 2004). In examining again the work in the VAL-ED study, Porter, Goldring,
Murphy, Elliott, & Cravens (2007) concluded in their findings that the principal mentor provided the novice principal with guidance and support, assistance with problem solving, and development of technical knowledge and skills. Four structures were determined to support effective implementation of the mentoring model in the VAL-ED model: (a) mentor training, (b) planning tools, (c) time, and (d) relationship. Findings indicated that the principal created specific school climate/learning conditions for teachers, such as support for professional growth, time for collaboration, and a book study. There was evidence that these conditions had a positive influence on the teachers' practice: however, the extent to which these practices were impacted could not be determined. Although research about leadership preparation outcomes on principal practice is somewhat limited, findings show that effective practices can be developed, although better evidence is needed for program design and to measure developmental progress. Preliminary research suggests that when exemplary program content and delivery features are in place, programs yield better graduate outcomes related to learning and career advancement (Orr & Barber, 2007; Orr, Silverberg, & LeTendre, 2006). More recent research comparing the experiences of exemplary and conventionally prepared principals, showed that quality leadership preparation positively influenced what graduates learned and how they practiced instructional leadership, which in turn positively influenced their schools’ improvement progress and effective school climate. School context [poverty (positively) and the extent of challenging problems (negatively)] has a mediating influence on the leadership practice-school improvement progress-effective school climate relationships (Orr, 2007). The impact of leadership development is less clear, primarily because research is limited. Various experts stress the importance
of feedback for principals to gauge their progress, and as essential to the program design.

One case links case simulation principal assessment and professional development that enhances reflective thinking and professional learning (Claudet, 2002). Schmoker (2004) advocates that principals’ professional development be in learning communities and be recursive cycles of instruction and assessment. Other researchers found that principals most want professional development in areas in which they are being held accountable (Nicholson, Harris-John, & Schimmel, 2005) and that summative principal evaluation rarely fosters professional growth. Instead, principals need formative evaluation that guides them on areas for improvement and encourages the development of new skills and talents (Fontana, 1994). But, further guidance is needed for formative assessments that identify specific behaviors related to school improvement and achievement.

In talking about role clarification of the principal, most of the principals surveyed by Hearne (1991) conveyed the need for more assistance and knowledge as they assumed their new role. Hearne contended that the principalship is full of surprises. Her recollection of her first year as an administrator was one of discovery. Even though she felt adequately prepared after she left a university training program, she found that the principalship was not what she had anticipated. The greatest frustration she experienced was learning to cope with her new role and the newfound power of her position. In addition, she felt that learning the intricacies of the position, establishing routines, and building a culture were the largest stumbling blocks she faced. Moreover, by looking around at other novice principals and reading current literature on principal induction, she found that she was not alone. Duke (1986) conducted a study on the first-year administrator and found that most districts did not provide ample information to new
hires about expectations associated with their position. A lack of feedback from their supervisors often led to anxiety and self-doubt.

Additional studies, like those by Daresh (1986, 1987), Daresh et al. (1989), and Daresh and Playko (1989), found that role clarification was perhaps the most frustrating skill that new principals must learn. Most new principals have had little experience prior to this position and therefore have difficulty when faced with the administrative dilemmas inherent in their new role.

Van Maanen and Shein (1979) believed that isolation is a drawback of being a principal. Anderson (1988) and Daresh (1987) found that the isolation of principals often leads to mistakes that have consequences that can surface weeks or even months later. Daresh and Playko (1992b) listed some ways that districts and universities can address feelings of isolation, including monthly principal meetings, survival training on the induction of the principal, and job coaches.

Three recent papers have addressed more specific questions relating to principals. Coelli & Green (2009) estimate the variation in principal effectiveness across schools. Their approach—a version of the method Rivkin, Hanushek, and Kain (2005) use to analyze teacher impacts—ignores specific principal characteristics such as education and experience and focuses instead on the correlation between within-school performance variation and within-school principal turnover: under some assumptions, the strength of this correlation is increasing in the variation in principal effectiveness. One important assumption is that student sorting is unrelated to principal effectiveness. If that assumption is violated (e.g., if effective principals attract high-achieving students to a school), this method will overstate the variation in principal effectiveness. Their results
suggest some role for principal quality in determining students’ standardized exam scores, but they find little impact on graduation rates. Cullen and Mazzeo (2008) examine the relationship between school performance and the principal’s future wages. They find that strong performance is associated with increased future wages, which suggests that the principal labor market may provide effective incentives for principals.

Review of School Culture

The literature shows that there is difficulty of clearly defining the concept of culture to schools. This has been illustrated by Schein (1997) where he describes his experience of discussing culture with school leaders and finding that they either ascribed completely different meanings to the term or denied any involvement with it (without being able to say what the ‘it’ was). Sparkes (1991) observes that culture is essentially a contested concept while Prosser (1999) comments that culture is a useful but intricate and elusive notion. Hoy & Miskel (2001) advance perhaps the clearest definition of culture when they suggest that culture consists of shared assumptions, values and norms. However, even in this definition there is an acceptance that the concept is less precise than it might be. For example, whose values and norms make up the culture of the school?

For the purposes of this study, school culture refers to the elements necessary in transmitting knowledge from one group of people to another. It contains belief systems, morays, patterns of behavior, and modes of communication all found in businesses and educational programs to date. “Corporate cultures have a bedrock of values that lie therein” (Deal & Kennedy, 1982, p. 21). Schoen & Teddlie’s (2008) Dimensions of
Culture talk about the analysis of school culture and its effect size on student achievement. These four dimensions include, (1) professional orientation, (2) organizational structure, (3) quality of the learning environment, and (4) student-centered focus. The Center for Improving School Culture (2004) summarizes school culture as defined by Deal & Peterson (1993) and Robbins & Harvey (1995) as the “inner reality” that, “reflects what organizational members care about, what they are willing to spend time doing, and how they celebrate, and what they talk about” (p. 1).
Chapter III: Methods

Through the numerous literature reviewed and even three principal pipeline studies, the question in this study is only beginning to be resolved in the initial stages; for the literature did not examine the potential or actual ability of the principal to influence student achievement, nor did the literature look at what happens to school achievement when there is a principal change at the school. In addition and also importantly so, the academic question of how the school principal practices influence student achievement in his or her school—be it directly or indirectly, and through managerial and instructional outcomes—and the value of the principal’s effect upon student achievement in school are still debated, primarily because studies have had small samples, including secondary schools with smaller effect sizes, and have not used longitudinal data. In linking the principal’s effect of student academic outcomes and linking it to school culture, a likely trend will be apparent (for example, the teacher and school culture effects) that will be extremely valuable in the reauthorization of No Child Left Behind. “While evidence about leadership effects on student learning can be confusing to interpret, much of the existing research actually underestimates its effects. The total (direct and indirect) effects of leadership on student learning account for about a quarter of total school effects.” (Leithwood, 2004, p.3).

The Careers (2004) Rand research brief is particularly useful regarding “what the data do not reveal, and how that might shape future research and data collection efforts” (p.3). The body of literature further shows that “the systematic data on principal characteristics will need to be analyzed in conjunction with data on student outcomes and
other factors in order to address the question of which characteristics matter in which contexts” (pp.3-4).

While it is essential to examine principal characteristics and student outcomes, it is also indispensable to understand what principals’ practices raise student achievement, and how school culture plays a role in this. “The fact that leadership effects on school achievement appear to be indirect is neither cause for alarm nor dismay ...Achieving results through others is the essence of leadership. A finding that principal effects are mediated by other in-school variables does nothing whatsoever to diminish the principal's importance” (Hallinger & Heck, 1996 p. 39).

Cotton’s (2003) review concluded that principals who raise student achievement do so by focusing on student discipline and staff development. Barton, Coley & Wenglinsky, (1997) analyzed the National Educational Longitudinal Study and the National Assessment of Educational Progress also found a positive relationship between strict discipline and student outcomes. Waters (2003) conducted a meta-analysis of 70 studies involving 2,894 schools with approximately 1.1 million students and 14,000 teachers that examined the effects of leadership on student achievement since the early 1970’s. He found the average effect size between leadership and student achievement was .25, suggesting that a one standard deviation improvement in leadership practices is associated with a statistically significant increase in average student achievement from the 50th percentile to the 60th percentile. Very interestingly, he also found that leaders can have a negative impact on achievement. In another meta-analysis, Witziers (2003) revisited the debate on the impact of the principal’s leadership on student achievement in international studies that examined both direct effect and indirect effect models. They
found only small positive effects for the direct effects model, confirming earlier findings. Interestingly, however, they find that “…studies conducted in secondary schools produced significantly lower effect sizes than those conducted in primary schools.” Given the divergence in these results, the question of whether school principals matter remains unresolved. Another unresolved question is how the effects on student outcomes might be mediated” (p. 412).

Witziers (2003) also suggested that future research include larger samples and longitudinal data. “Given the restrictions in variability in leadership behaviors and the fact that school effects are by definition small (achievement differences are best explained by student characteristics), samples of schools tend to be too small to detect significant effects. Therefore, especially in working with mediated effect or reciprocal models, the need to use longitudinal data is often expressed to detect the real impact of leadership” (p. 417). In a study of principal actions in 257 elementary schools in California with differing performance, Williams, Kirst, & Haertel (2005) concluded that prioritizing student achievement was stronger than professional development, enforcing high expectations for student behavior, or increasing involvement and support of parents. This study addresses the following research question and sub-questions: Do principals significantly impact school performance during the initial years of their principalship at a school?

a. Is there significant variability in the impact of principals during the initial years of their principalship at a school?

b. Is the variability in effectiveness associated with the impact of school principal management behaviors, accounting for principal and school
c. Is the variability in effectiveness associated with the impact of school principal instructional behaviors, accounting for principal and school concomitant variables?

Use of 2007-2008 Schools and Staffing Survey

The data used in this study were collected through the 2007-2008 administration of the Schools and Staffing Survey (SASS). The SASS is conducted by the United States Department of Education’s National Center for Education Statistics (NCES) to collect extensive data on public, public charter, Bureau of Indian Affairs (BIA) funded, and private schools in the United States (Tourkin, 2007). These data are collected on both elementary and secondary schools. The SASS is the nation’s largest, most extensive survey of K-12 districts, schools, teachers, and administrators (Tourkin, 2007).

Specifically, the data used in this study were gathered from the SASS Teacher Questionnaire (form SASS-4A) and the Principal Questionnaire (form SASS-2A). Form SASS-4A gathers data about teachers in the eleven sections of the survey (1. General Information; 2. Class Organization; 3. Educational Background; 4. Certification and Training; 5. Professional Development; 6. Resources and Assessments of Students; 7. Working Conditions; 8. Decision Making; 9. Teacher Attributes and School Climate; 10. General Employment Information; and 11. Contact Information). Form SASS-4A was distributed in two versions. One version of form SASS-4A for public school teachers, and another version for private school teachers, form SASS-4B. Because this study only focused of regular, full-time public school teachers, only data from the form SSA-4A
The data from the SASS Principal Questionnaire collects information in eight sections in form SASS-2A (1. Principal Experience and Training; 2. Goals and Decision Making; 3. Teacher and Aide Professional Development; 4. School Climate and Safety; 5. Instructional Time; 6. Teacher and School Performance; 7. Working Conditions and Principal Perceptions; 8. Demographic Information). One version of form SASS-2A was for public school principals, and another version for private school principals, form SASS-2B. Because this study only focused of regular, full-time public school principals, only data from the form SASS-2A dataset were used.

The 2007-2008 SASS is not a random sample. According to Tourkin (2007), the 2007-2008 SASS follows the same design of the SASS 2003-2004 survey, which is a stratified probability sample proportionate in size to schools districts and schools nationwide. The first and second levels of stratification were based on school type. The third stratification was by grade level. The present study focused on elementary school principals in public schools. The sampling frame foundation for the 2007-2008 SASS public school sample came from the 2007-2008 version of the Common Core of Data (CCD). The CCD represents data collected annually by the National Center for Education Statistics (NCES) from all state education agencies providing the most complete public school listing available at the time the 2007-2008 SASS was administered.

The sample size for the 2007-2008 SASS included 5,248 public school districts, 9,795 public schools, 9,795 public school principals (of which 4,036 were elementary school principals), and 47,603 public school teachers. This study only examines regular,
full-time, public school elementary teachers and regular full-time public school
elementary school principals. After the selection criteria was applied to the form SASS-
2A restricted-use data file, and the form SASS-4A restricted-use data file, the number of
data was further reduced. The final dataset used for analysis consisted of 177 principals
and schools.

Choosing the Samples in the 2007-2008 Schools and Staffing Survey

Public elementary school principals in the 2007-2008 SASS sample who had
served nine or fewer years at their school were selected (Q0026). I used the nine-year
limit because, at the current time, the California Standards Tests data from the state
testing program in California, contains assessment scores for every public school in
California from 1997-1998 through the 2010-2011 academic year. The 2007-2008 SASS
public elementary school principal data was merged with the school-level state
assessment data and CCD school-level descriptive data not present in 2007-2008 SASS,
using the variable SC_NCSID (NCES school ID number, which is common to both data
sets.)

Using the California Academic Performance Index (API) Dataset

The restricted-use dataset containing individually identifiable survey data in the
NCES Schools and Staffing Survey (2007-2008 SASS) meeting the criteria were matched
with student outcome data from the California standards test (CST). Nine longitudinal
years of CST school test scores was used. From the 4,036 public elementary schools in
2007-2008 SASS, data was used to explore whether certain principal training,
experiences, and teacher/school cultural attitudes, and instructional behaviors are associated with student achievement gains public elementary schools in California, taking into account different school contexts and reconstitution. These data were broken into two main paths: principal managerial attributes, and principal instructional attributes.

The use of the Academic Performance Index (API) was used in this study as an amalgam of all the CST score data for an elementary school. The API is a compensatory measure, and together with the 2007-2008 SASS, nine constructs were formed and will be discussed, based on the API and the API trajectory of the a school. In 1999, California began ranking its public schools on the basis of their scores on the API. That measure was constructed by using the results of the state-mandated standardized test administered to students in Grades 2-11 in the spring of each school year. The API is the outcome of California's Public Schools Accountability Act of 1999 (Senate Bill XI), which authorized the California Superintendent of Public Instruction and the State Board of Education to construct a metric to measure the performance of schools, comprised primarily of the results of the state tests. The Academic Performance Index assigns one number to a school on a scale of 200 to 1,000, with a score of at least 800 as the goal. The first step in calculating the API is to divide a school's individual student scores in each subject into five performance bands. The performance bands for California Standards Test (CST) results are labeled advanced, proficient, basic, below basic, and far below basic.

The next step in converting CST scores to API points was to apply weights to the percent of students with scores in each performance band (least weight for the lowest bands). These are summed to give a value for the subject and grade level. Then each
subject area and test is given a weight within the index. The weights depend on which tests are given to each grade in each school. The Base API scores vary school by school, depending on students’ grade levels and the number of students tested. The API calculation also depends on the number of valid test scores at the school. Finally, the resulting scores are added to become one number for each school—its API. A school district’s API is the sum total of all the student (not school) scores.

**Linking Methodology**

To link and merge the datasets, I selected from 2007-2008 SASS public elementary school principals. This subset of public elementary school principals was then merged with school outcome and school characteristic data from the California Standards Test (CST) for as many years as the principal remained in that school. The Common Core of Data (CCD) was used merge the 2007-2008 SASS data and the API data into a single dataset in order to link the schools (and thus link the principals and teachers in those schools together). Using the CCD to link the national SASS data to the state API data was a novel approach that is not widely described in the literature, but has been explained by Tickle, Chang, & Kim (2010).

This study will use a procedure that McLaughlin (2000, 2002), previously used to successfully link previous Schools and Staffing Survey data with student achievement data from state assessments to assess student achievement that does not require a SASS-API school overlap. The use of restricted, individually identifiable 2007-2008 SASS principal survey data combined with school-level student outcome data from the API dataset remedy some of the unresolved analysis issues and recommendations for future
research in previous studies of school principals. Combining school culture and instructional characteristics, together with outcome data from the 2007-2208 SASS sample of public elementary school principals in schools will satisfy the Rand recommendation that “systematic data on principal characteristics will need to be analyzed in conjunction with data on student outcomes in order to address the question of which characteristics matter in which contexts” (Careers, 2004, pp. 3-4.). This is especially important in looking at this data through the lens of the upcoming reauthorization of NCLB. The focus upon public elementary school principals addresses both the stronger elementary level effect size findings of Witziers (2003).

I looked at the 1,700 principals in the 2007-2008 SASS and limited the data to only public school principals in California, only elementary school principals, and only those principals who started after two years of API data so that a “pre-test” (pre-new principal) could be based for that school. The resultant number of principals was 177, and finally 166 could be matched and used.

**Variables and Measures in the School and Staffing Survey 2007**

The 2007-2008 SASS principal questionnaire data are particularly rich, with respondents reporting total experience as a principal (Q0025), the number of years served as the principal of their current school (Q0026), prior (and current) teaching experience (Q0027-29), the school positions (i.e., guidance counselor, coach) held before becoming a principal (Q0030-36), the highest degree earned (Q0039), contract year in months (Q0042), whether they participated in professional development in the last 12 months (Q0134-140), whether a member of a national association of principals (Q0142), and
such demographic information (Q0254-0262) as gender, race, and year of birth. The respondents also indicated the importance they placed on various educational goals, such as encouraging academic excellence (Q0056-0058); their influence on setting performance standards for students at this school (Q0062); and their influence deciding how their school budget will be spent (Q0105), and their satisfaction or disappointments with being a principal (Q0043-49).

The 2007-2008 SASS principal questionnaire data also contain school information for the current school in which the respondent is a principal, including whether the school has a formal school improvement plan (Q0160), and how progress on that plan is assessed (Q0161-0163), the school’s performance last year (Q0166), whether the school received cash bonuses or additional resources (Q0167-0169), whether the school was sanctioned (Q0170-0177), the school climate and safety (Q0185-0190), school security measures and the types of problems that occur at the school (Q0191-0227), and parent involvement (Q0234-0247). In addition, certain descriptive school variables are available: urbanicity of the school (URBANS03), school size (SCHSIZE), the percent of minority students (MINENR) and teachers (MINTCH), and the percent of students in free or reduced school lunch (NSLAPP).

Based on a review of the literature, nine principal behavior constructs were formed using both teacher and principal variables from the 2007-2008 SASS. Constructs related to conditions as predictors of principal success were validated by a number of recent studies (Borman & Dowling, 2008; Guarino et al, 2006; Ingersoll, 2001; McGrath & Princiotta, 2005) that said that managerial and organizational conditions play a significant role in the principal being effective at their school site. Managerial and
organizational conditions refer to the conditions that surround the activities of a principal and include salary and benefits, class size, support and supervision, student discipline issues, parent influences, principal influence over decision-making (Fajen, 2001).

Table 3.1

Construct Types

<table>
<thead>
<tr>
<th>Managerial Constructs</th>
<th>Instructional Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Involvement</td>
<td>Instructional Breadth of Subjects Taught</td>
</tr>
<tr>
<td>Principal Support of Parent Participation</td>
<td>Instructional Depth of Subjects Taught</td>
</tr>
<tr>
<td>Principal Influence on School</td>
<td>Teacher Control of Instruction</td>
</tr>
<tr>
<td>Principal Influence on Evaluation</td>
<td></td>
</tr>
<tr>
<td>Principal Support of Teachers</td>
<td></td>
</tr>
<tr>
<td>Increased Support for First Year Teachers</td>
<td></td>
</tr>
</tbody>
</table>

Generally, research on the effectiveness of school principals falls into two broad categories that examine principal practices and behaviors related to management and instruction (Goldring, Huff, May, & Camburn, 2008). Instructional constructs (see Table 3.1 above) are the conditions and influences that principals and teachers have including the depth and breadth of the instructional program in place at the school, professional development, teacher input and influence in the what is being taught, techniques used, evaluation of students, teacher discipline, homework assigned, and principal supportiveness and backing of teachers in these endeavors. If controlled for, these conditions could “contribute to lower rates of staff discontent, and hence, ultimately, aid
the performance of the schools principal” (Ingersoll, 2001b: 7).

The nine constructs developed and used in this study were based on equally weighted composites. Reliability for each of the constructs were checked. In general, they averaged 0.7 so they were acceptable. Values less than 0.7 (in the 0.5 to 0.7 range) were lower, but bearing on the results, were still important to consider in the analysis. See Tables 3.2, 3.3, and 3.4 below.

The construct of parent involvement (PI) is made up of the variables asked in the 2007-2008 SASS having to do with the percentage of students whose parents attended Open House and Back-to-School Night activities, the percentage of students whose parents attended parent-teacher conferences at least one time a school year, the percentage of students whose parents attended science fairs, awards assemblies and other school activities, as well as the percentage of parents whose parents volunteered at the school on a regular basis (but the volunteering is not disaggregated in SASS to indicate if this was in-the-classroom volunteering, or in-the-school volunteering like working in the school library, the snack shack, or helping with lunch supervision, et al. (This is a limitation as this more detailed information would be valuable to know). Respondents to the PI question selected a response of 1 to indicate a 25% or less selection, 2 to indicate 26% to 50% selection, 3 to indicate 51% to 75%, and 4 to indicate 75% to 100%.

The construct of PFPI, or principal facilitation of parent involvement encompasses the support of parents by the principal and school. For example, the existence and use of a dedicated parent lounge or center, a dedicated staff person to oversee parent involvement, and child care and transportation provided by the school to ease the burden in these areas so parents will come to school and become involved.
NCES has administered SASS on a regular basis for the last 25 years. To date, six cycles have been completed: 1987–1988, 1990–1991, 1993–1994, 1999–2000, 2003–2004, and 2007–2008. A limitation to keep in mind is that the 2007-2008 SASS restricted-use data did not have some of the same items that were in previous SASS surveys. Tourkin (2007) explains in great detail a number of changes that were
<table>
<thead>
<tr>
<th>Construct</th>
<th>SASS Item #</th>
<th>Item Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB</td>
<td>A0177</td>
<td>Social studies taught hours/week</td>
</tr>
<tr>
<td>IB</td>
<td>A0178</td>
<td>Science taught hours/week</td>
</tr>
<tr>
<td>IB</td>
<td>A0179</td>
<td>Foreign Language taught (not ESL) hours/week</td>
</tr>
<tr>
<td>IB</td>
<td>A0180</td>
<td>Physical education taught hours/week</td>
</tr>
<tr>
<td>IB</td>
<td>A0181</td>
<td>Music taught hours/week</td>
</tr>
<tr>
<td>IB</td>
<td>A0182</td>
<td>Art taught hours/week</td>
</tr>
<tr>
<td>ID</td>
<td>A0174</td>
<td>English language arts taught hours/week</td>
</tr>
<tr>
<td>ID</td>
<td>A0176</td>
<td>Mathematics taught hours/week</td>
</tr>
<tr>
<td>PI</td>
<td>A0153</td>
<td>% of students where parent attended open house</td>
</tr>
<tr>
<td>PI</td>
<td>A0154</td>
<td>% of students where parent attended teacher conferences</td>
</tr>
<tr>
<td>PI</td>
<td>A0155</td>
<td>% of students where parent attended science fair/activities</td>
</tr>
<tr>
<td>PI</td>
<td>A0156</td>
<td>% of students where parent volunteers on regular basis</td>
</tr>
<tr>
<td>PFPI</td>
<td>A0157</td>
<td>Dedicated staff member working on parent involvement</td>
</tr>
<tr>
<td>PFPI</td>
<td>A0159</td>
<td>Workshops and training provided to parents</td>
</tr>
<tr>
<td>PFPI</td>
<td>A0160</td>
<td>Child care and transportation provided for parents</td>
</tr>
<tr>
<td>PFPI</td>
<td>A0161</td>
<td>Dedicated parent center or parent lounge available</td>
</tr>
<tr>
<td>IDM</td>
<td>A0046</td>
<td>Principal has influence in parent involvement</td>
</tr>
<tr>
<td>IDM</td>
<td>A0053</td>
<td>Principal has influence on establishing curriculum</td>
</tr>
<tr>
<td>IDM</td>
<td>A0060</td>
<td>Principal has influence on planning training for teachers</td>
</tr>
<tr>
<td>HR</td>
<td>A0068</td>
<td>Principal influence on evaluating teachers at site</td>
</tr>
<tr>
<td>Construct Name</td>
<td>Number of Items</td>
<td>Cronbach’s Alpha</td>
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<td>------------------</td>
</tr>
<tr>
<td>Educational Breadth (IB)</td>
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<td>0.459</td>
</tr>
<tr>
<td>Name</td>
<td>N</td>
<td>Min</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>Instructional Depth (ID)</td>
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</tr>
<tr>
<td>Parent Involvement (PI)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Principal Facilitation of Parent Involvement (PFPI)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Principal Influence on School (IDM)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Principal Evaluation and Staffing on School (HR)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Teacher Control of Instruction (TC)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Principal’s Support of Teachers &amp; Staff (TPS)</td>
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<td></td>
</tr>
<tr>
<td>Teacher’s Support in First Year of Teaching (TSY1)</td>
<td>6</td>
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</table>

Table 3.4

_School Descriptive Statistics_

<table>
<thead>
<tr>
<th>Name</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Teachers/School</td>
<td>166</td>
<td>8.06</td>
<td>85.51</td>
<td>30.8223</td>
<td>13.06891</td>
</tr>
<tr>
<td>Number of Students/Teacher</td>
<td>166</td>
<td>5.83</td>
<td>26.91</td>
<td>19.4117</td>
<td>3.16146</td>
</tr>
<tr>
<td>Teacher Experience in Years</td>
<td>166</td>
<td>0</td>
<td>35.00</td>
<td>13.0723</td>
<td>6.96447</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
made in the sample design from the 1999–2000 SASS to the 2003–04 SASS, and then with further minor changes for the 2007-2008 administration.

Changes to the 2007-2008 SASS were made to the stratification, sample sizes, sample sort, and school definition (Tourkin, 2007). These changes were made to be more inclusive of the ever-expanding universe of public and government schools that have come into being in the last decade. Specifically, in 2007-2008 there was a new survey added to query the public charter schools. In past SASS surveys, public charter questions were included in the public school survey. Further, Bureau of Indian Affairs (BIA)-funded schools had a more comprehensive questions-base than in past SASS administrations. In addition to public charters, other new questions on the 2007-2008 SASS queried about the home schooling, and pre-school programs. Questions removed from the current survey covered the areas of migrant education, details on span (K-8, K-12, 4-12, et al) schools, number of days of instruction, teacher and student attendance, and some specific subject matter questions on the principal survey. Therefore, this presents a limitation in that not all data collected is the same from SASS to SASS for the different periodic administrations.

Analysis Methods

In order to answer the research question, I modeled the relationships between principal behavioral constructs of SASS school-level principal responses, as well as API measures at the school level. Specifically, the model relates a variety of factors—principal training, experience, culture, and attitude as well as personal and professional
characteristics, school characteristics, context, climate, and student achievement. These data were first examined descriptively in order to identify outliers and whether the data conformed to the assumptions required to use the analytical techniques discussed below. These associations were then examined using correlations, ordinary least squares linear (OLS) regressions and random effects models.

Statistical tests performed on these data allow us to reject the null hypotheses, meaning that there is no relationship (or effect) for the variable being tested. The t-test assesses whether the means of two groups are statistically different from each other. The formula for the t-test is a ratio, and the top part of the ratio is just the difference between the two means, or averages. The t-value in the tables are positive if the first mean is larger than the second and negative if it is smaller. A p-value is a statistical value that details how much evidence there is to reject the most common explanation for the data set. It can be considered to be the probability of obtaining a result at least as extreme as the one observed, given that the null hypothesis is true. The p-value tells us what the probability is of having such a large t-ratio. If it is less than 0.5, we can rule it out.

The standard deviation (sd) gives an idea of how close the entire set of data is to the average value. Data sets with a small standard deviation have tightly grouped, precise data. Data sets with large standard deviations have data spread out over a wide range of values.

Dummy variables enable us to use a single regression equation to represent multiple groups. This means that we don't need to write out separate equation models for each subgroup. The dummy variables act like “switches” that turn various parameters on and off in an equation, and dummy variables have been used in this study.
Given my intent on examining and modeling how the principal change impacted school performance, and if principal behaviors and characteristics effected that relationship, nine years of API data were examined, from 1999 to 2009.

The crux of this study is the creation of a dataset that allowed me to do an interrupted time series analysis (ITS). In the ITS, the basic design is to have a period of baseline data to see school performance looking at the old principal and new principal over time. This is further discussed in more detail below.

**Statistical Design**

An interrupted time series (ITS) design models trends in time and compares the outcome predicted from those trends with the outcome actually observed. For instance, if several years of pre-treatment school API scores are available, a model is fit to those nine years of data, and the outcome at year $t+1$ is predicted on the basis of that model, where $t$ is the year of treatment assignment. Deviations from that prediction are interpreted as the effect of the treatment administered in year $t$. Thus, the potential outcome under control is assumed to be the prediction for the year of interest obtained from a model of the trend in scores estimated in the years prior to the treatment (Perrin, 2009).

In setting up the ITS model, the interruption is when the new principal begins at the school, and I examined if there was a change in the level of the slope, and can I explain that change with the constructs being modeled. Normally, the ITS model looks at changes in levels and slopes. However, in this study it is already a “given” that there is an upward trend school performance (see Table 3.5 below) and the research interest is the
actual change in the slope after the interruption.

The basic ITS model for this study is:

$$API_{tj} = \beta_{0j} + \beta_{1j}T + \beta_{2j}D + \beta_{3j}P + e_t$$  \hspace{1cm} (1)

In the above equation, API is the academic performance index at time $t$ for school $j$, $T$ is the time from the start of the observational period (continuous variable beginning at 0), $D$ is a indicator variable for post intervention (coded 0 prior to intervention, and 1 post intervention), $P$ is the time since intervention (prior to intervention coded 0, and post intervention, continuous starting at 1), and $e_t$ is the random variation at time $t$ not explained by the model. If API, $\beta_2$, and $\beta_3$ are significantly different, then zero tests weather there was significantly different performance in the schools when the new principal took over ($\beta_2$) and if the changes persisted over time ($\beta_3$).

The extended model treats $\beta_2$ and $\beta_3$ as random effects and assumes they vary normally across principals. The aforementioned random effects are then modeled as a function of principal characteristics and behaviors (e.g. the constructs):

$$\beta_{2j} = \gamma_{2,0} + \gamma_{2,1} Mgmt + \gamma_{2,2} Instr + \gamma_{2,3} ... + U_1$$  \hspace{1cm} (2)

$$\beta_{3j} = \gamma_{3,0} + \gamma_{3,1} Mgmt + \gamma_{3,2} Instr + \gamma_{3,3} ... + U_3$$  \hspace{1cm} (3)

Where $\gamma_{21}$, for example, estimates the effect of managerial attributes, equations 1, 2, and 3 were estimated simultaneously. Hence, the test for statistical significance of $\beta_2$ and $\beta_3$ answer research question 1a; and the test for $\gamma_{2,1}, \gamma_{2,2}, \gamma_{3,1},$ and $\gamma_{3,2}$ parallel the form test for research question 1b and research question 1c. The calculations were completed using the Statistical Package for the Social Sciences (SPSS version 18) using the mixed models procedure. Using these methods and datasets, the research question was tested.
A variety of models were tested, as McLaughlin and Drori (2003) comment on in their exploration of the school-level correlates of academic achievement, “The aim of the analyses to be carried out is to test hypotheses about the relations among these factors, either in terms of partial correlations or in terms of fits of linear models…. By testing these models, inferences can be made about correlates of achievement across a wide range of public schools…” (p. 9). The idea here is to balance parsimony, model fit, underlying theoretical rationale and exploratory power.

Table 3.5

*Academic Performance Index (API) by Year*

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean API</th>
<th>N</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>635.71</td>
<td>130</td>
<td>135.091</td>
</tr>
<tr>
<td>2000</td>
<td>670.06</td>
<td>130</td>
<td>129.409</td>
</tr>
<tr>
<td>2001</td>
<td>688.57</td>
<td>137</td>
<td>121.618</td>
</tr>
<tr>
<td>2002</td>
<td>702.76</td>
<td>137</td>
<td>115.440</td>
</tr>
<tr>
<td>2003</td>
<td>725.51</td>
<td>142</td>
<td>97.183</td>
</tr>
<tr>
<td>2004</td>
<td>731.46</td>
<td>146</td>
<td>95.253</td>
</tr>
<tr>
<td>2005</td>
<td>742.13</td>
<td>151</td>
<td>98.784</td>
</tr>
<tr>
<td>2006</td>
<td>756.32</td>
<td>155</td>
<td>95.817</td>
</tr>
<tr>
<td>2007</td>
<td>760.16</td>
<td>165</td>
<td>90.536</td>
</tr>
<tr>
<td>2008</td>
<td>771.68</td>
<td>166</td>
<td>85.343</td>
</tr>
<tr>
<td>2009</td>
<td>787.48</td>
<td>154</td>
<td>80.576</td>
</tr>
<tr>
<td>Total</td>
<td>728.00</td>
<td>1613</td>
<td>112.59</td>
</tr>
</tbody>
</table>
Chapter IV: Results

The purpose of this study was to add to the body of knowledge about principal effectiveness in California public elementary schools by adding an investigation using an interrupted time series analysis to examine what happens to a school’s achievement when the principal changes, and what behaviors and attributes relate to a principal, and thus the school, as a proxy for effectiveness. This study tested nine different constructs (see Table 3.2) that were identified in the literature as important indicators used to identify effective behaviors and attributes of principals in the field. The nine constructs tested were: instructional breadth of elementary subjects taught, instruction depth of English language arts and mathematics instruction, parent involvement in their child’s school, the principal’s facilitation of parent involvement activities, the principal’s influence on school activities, the teacher’s control of various instructional endeavors, the principal’s support of teachers and other staff, and support given to the teacher during their first year of teaching. The outcome variable is the rise or fall of academic performance index.

This chapter assembles the results of the analysis of descriptive statistics, the multiple regressions, and the results of the interrupted time series analysis that were done to answer the research questions.

Descriptive Data Analysis

The 2007-2008 SASS Principal Questionnaire allowed public school principals to categorize themselves by race, gender, highest degree earned, and whether the principal had previous management experience outside of education prior to becoming a principal.
Most (65%) of the respondents were female principals, and many (47%) have had previous outside-of-education managerial experience. The details of each of the behaviors are outlined in Tables 4.6 and 4.7. Descriptive analysis shows some interesting detail.

Most principals (76%) in the 2007-2008 SASS survey have earned a Master’s Degree, while fewer than 5% of principals hold a Bachelor’s Degree as their highest degree. Almost 4% of principals have earned a Doctor of Education (Ed.D.) or Doctor of Philosophy (Ph.D.) as their highest degree, while 14% have earned some professional certification in and education specialty certificate or credential, although the data doesn’t disaggregate what type of specialization is held, and if degrees (like an M.A. or Ed.D.) are held concurrently with this specialization. The greatest racial group of principals

Table 4.6

Principal Demographic Descriptive Statistics

<table>
<thead>
<tr>
<th>Descriptor Name</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
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<tbody>
<tr>
<td>Years of Principal Experience</td>
<td>166</td>
<td>0</td>
<td>33</td>
<td>3.54</td>
<td>5.24</td>
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<tr>
<td>Principal Start Age</td>
<td>166</td>
<td>29</td>
<td>70</td>
<td>48.40</td>
<td>8.60</td>
</tr>
<tr>
<td>Male or Female</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.65</td>
<td>0.48</td>
</tr>
<tr>
<td>Race, Hispanics</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.19</td>
<td>0.39</td>
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<tr>
<td>Race, White</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.84</td>
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<tr>
<td>Race, Black</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.08</td>
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<td>166</td>
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<td>1</td>
<td>0.02</td>
<td>0.13</td>
</tr>
</tbody>
</table>
surveyed indicated they are white (84%), while the smallest identified racial group of principals American Indian and/or Alaskan Natives (less than 1% of respondents).

Years of experience varied widely for the principals responding to the 2007-2008 SASS, with a low of zero years (first year as principal when responding to SASS), to a high of 33 years of experience. While the high end of 33 years is very veteran, the survey sample of principals is not a very experienced group as a whole, for the mean years of experience for the 166 California elementary school principals is just 3.5 years with a standard deviation of 5.24. Looking at the entire 2007-2008 SASS results nationwide, the average principal experience in the United States is 8.1 years, so the sample looked at in this study representing 166 California elementary school principals are a much less experienced group compared to the nationwide sample (3.5 years of experience in California compared to 8.1 years experience nationwide). Survey respondents reported starting the principalship as young as 29 years old, and as old as 70 years old, with a mean age of 48.4 years old, with a standard deviation of 8.60 years. Within the frame of

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>1</th>
<th>M</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race, Indian/Alaskan Native</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.01</td>
</tr>
<tr>
<td>Degree Earned, BA</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.05</td>
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<tr>
<td>Degree Earned, MA</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.77</td>
</tr>
<tr>
<td>Degree, Education Specialty</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.14</td>
</tr>
<tr>
<td>Degree Earned, PhD or EdD</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.04</td>
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<tr>
<td>Previous Management Exp.</td>
<td>166</td>
<td>0</td>
<td>1</td>
<td>0.47</td>
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<tr>
<td>Valid N (listwise)</td>
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</tr>
</tbody>
</table>


Table 4.7

*Principal Constructs Descriptive Statistics*

<table>
<thead>
<tr>
<th>Construct Name</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Breadth (IB)/hr</td>
<td>126</td>
<td>2.00</td>
<td>22.08</td>
<td>7.83</td>
<td>3.08</td>
</tr>
<tr>
<td>Instructional Depth (ID)/hr</td>
<td>126</td>
<td>7.00</td>
<td>27.03</td>
<td>15.97</td>
<td>3.70</td>
</tr>
<tr>
<td>Parent Involvement (PI)</td>
<td>161</td>
<td>1.00</td>
<td>4.0</td>
<td>2.87</td>
<td>0.64</td>
</tr>
<tr>
<td>Principal Facilitation (PFPI)</td>
<td>166</td>
<td>0</td>
<td>4.0</td>
<td>2.43</td>
<td>1.08</td>
</tr>
<tr>
<td>Principal Influence (IDM)</td>
<td>166</td>
<td>4.00</td>
<td>12.0</td>
<td>10.56</td>
<td>1.51</td>
</tr>
<tr>
<td>Principal Evaluation (HR)</td>
<td>166</td>
<td>4.00</td>
<td>8.00</td>
<td>7.71</td>
<td>0.65</td>
</tr>
<tr>
<td>Teacher Control Mean (TC)</td>
<td>165</td>
<td>10.00</td>
<td>24.00</td>
<td>18.72</td>
<td>2.60</td>
</tr>
<tr>
<td>Principal Support Mean (TPS)</td>
<td>165</td>
<td>3.00</td>
<td>12.00</td>
<td>10.20</td>
<td>1.61</td>
</tr>
<tr>
<td>Y1 Teacher Support (TSY1)</td>
<td>179</td>
<td>6.00</td>
<td>12.00</td>
<td>8.54</td>
<td>0.83</td>
</tr>
<tr>
<td>Principal Prof Dev (A0034)</td>
<td>179</td>
<td>0</td>
<td>1.00</td>
<td>0.96</td>
<td>0.19</td>
</tr>
<tr>
<td>Principal Wages per $10,000</td>
<td>166</td>
<td>5.00</td>
<td>16.70</td>
<td>10.08</td>
<td>1.36</td>
</tr>
</tbody>
</table>

The instructional depth (ID) construct tells us how many hours per week teachers spend teaching English language arts (including reading) and mathematics instruction. Respondents reported a low of 7 hours/week of ID and a high of 27 hours/week of ID, with a mean ID equal to 16. Indeed, this implies that students are spending about three hours per day on Language Arts and Mathematics and that there is considerable
variability among schools. For example a school at the 15th percentile of the instructional
depth (ID) construct provides about 12hr/week (15.91 - 3.7 = 12.21) of English language
arts and mathematics instruction while a school at the 85th percentile provides about 20
hrs/week (15.91 + 3.7) of English language arts and mathematics instruction. Hence, the
high ID school provides about 1.5 hours more per day than the low ID school. The
instructional breadth (IB) construct examines the elementary subject matter areas taught
by teachers other than English language arts and mathematics (but including physical
education, social studies, arts, and music). Here, respondents reported IB at a minimum
of 2 hours/week and a IB maximum of 22 hours/maximum, with a mean IB equal to 8.
These descriptive results indicate there is tremendous heterogeneity in ID and IB, which
demonstrates that schools do behave (e.g. are run) in very different ways. The 2007-2008
SASS did not ask about the number of hours per day or week that school is in session, as
it did in past surveys. However, a typical and standard California elementary school day
is 6 hours a day or 30 hours a week, with some schools districts adopting a slightly longer
day (Llach, Adrogué, Gigaglia, & Orgales, 2009).

The PI (parent involvement) mean was 2.87 with a standard deviation of 0.64,
which means that respondents are indicating that parent involvement is high, up to 3.51
or about 87.75% of parents being involved in the school (and a low on the other tail end
of the distribution at 56% of parents being involved). While high, it is almost the same as
the 2007-2008 SASS national mean of 2007 which represents every elementary surveyed
nationally by SASS. Anecdotal evidence as well as other studies show that it is not
unusual to have high parent involvement (Jeynes, 2007).

The construct of PFPI, or principal facilitation of parent involvement
encompasses the support of parents by the principal and school. For PFPI, respondents selected on a Likert scale 0 to 4 their involvement in these areas. The mean PFPI was 2.43 with a rather large standard deviation of 1.08. The tail ends of the distribution of PFPI, then would be in the area between 1.35 and 3.51. Of course, the construct PFPI (as well as all the constructs tested in this study) is actually a summation of several included variables, which are an indicator of parent involvement as facilitated by the school principal. Because of the large distribution and SD for PFPI, one can extrapolate that principals run schools differently, and that everything is not done the same way at every school.

The construct of HR focuses on teacher evaluation and staffing, and included two variables: does the principal have influence over evaluating teachers and staff at the site, and does the principal have influence over the selection and hiring of new full-time teachers at the site. Here, the 166 respondents used a scale of 4 to 8, and the mean was calculated at 7.71 with a standard deviation of 0.65. This fairly high mean indicates that elementary school principal respondents said they have a very great amount of control over these two areas of school human resources and evaluation.

Respondent teachers from the 2007-2008 SASS addressed the issue of teacher control and influence of some instructional matters. Construct TC contains questions relating to teachers controlling or influencing the selection of textbooks that they use, the skills that they are teaching, the instructional techniques that they use, the amount of homework assigned, and the ability to control the class and school student discipline environment. The scale here is a low of 10 to a high of 24, with a mean of 18.72 and standard deviation of 2.60. Thus, taking into account the SD, the distribution of
responses ranges from a high of 21.32 to a low of 16.12, a very middling distribution of TC.

The construct of principal support (TPS) contains questions having to do with how the principal supports teachers and staff, supports the school rules and backs teachers, how the principal communicates his or her mission and vision, and if the principal links test performance to job security. The one variable of linking student test data to teacher job security is especially timely, and begs for further and future research in this area. The TPS distribution was rather high with a mean of 10.20 and a standard deviation of 1.61, placed on a scale from 3 to 12. The standard deviation tails are in the range of 8.59 on the low end, to 11.81 on the high end. This indicated a high level of principal support selected by the respondents.

First year teacher support is as it sounds: How does the principal and school support the teacher in their first year of teaching and includes six variables. They are the providing of a reduced workload for teachers in their first year, the facilitation of a common planning time with grade-level peers, seminars and workshops for new teachers, classroom supports such as teacher assistants and technology, an atmosphere of support and nurturing of the first year teacher, and regular and ongoing feedback from the principal on their teaching. The mean of this construct was 8.54, on a scale with a low of 6 and a high of 12 and a standard deviation of 0.83. Although the SD is on the low side which indicates most respondents answered close to the mean, the overall mean is low-middling for this construct, with the tails of the distribution in the relatively tight range of 9.37 to 7.71.

Two other one-variable constructs were also tested. Principal professional
development was on a scale of 0 to 1, with a mean of 0.96 and a standard deviation of 0.19. The question here (A0034) is simply, “In the past 12 months, have you participated in any professional development activities related to your role as a principal?” The variable was recoded to 0 for no, and 1 for yes. Thus a mean of 0.96 indicated that almost every principal (96%) surveyed did indeed participate in principal professional development in the year prior. Further, it was interesting to take into account the amount of yearly salary that a principal earns and does that connect to principal effectiveness. Here, answers to question indicate a low range salary of $50,000 and a high range salary of $160,700, with a mean salary of $100,800 and standard deviation of $10,360.

**Answering the Hypothesis**

Now that the descriptive results have been looked at and discussed in great detail, the research question will be looked at. It is important to remember that the outcome to examine the principal effects that are of interest here is in the API, which is fully discussed in Chapter 3 and is modeled in different ways. All of this modeling leads us to answer the research hypothesis asked in this study:

RQ: Do principals significantly impact school performance during the initial years of their principalship at a school?

a. Is there significant variability in the impact of principals during the initial years of their principalship at a school?

b. Is the variability in effectiveness associated with the impact of school principal management behaviors, accounting for principal and school concomitant variables
c. Is the variability in effectiveness associated with the impact of school principal instructional behaviors, accounting for principal and school concomitant variables?

Specifically for sub-question b above, this is operationalized with the constructs from table 3.1, parent involvement, principal support of parent participation, principal influence on school, principal influence on evaluation, principal support of teachers, and increased support of first year teachers. For sub-question c above, this is operationalized with the constructs of instructional breadth of subjects taught, instructional depth of subjects taught, and teacher control of instruction. Both of these sub questions are also accounting for principal train and background.

Equations 1, 2 and 3 in Chapter 3 are estimates to test the null hypotheses related to the research hypotheses presented above. Three different models build upon each other to answer the research questions. The models first address the underlying trends in the API, then the impact of a change in the principal at a school, and finally the effects of management constructs and instructional constructs.

**Model 1:** Model 1 looks at the academic performance index (API) in 1999 and the average change in API per year. It is not conditioned on any particular principal or school characteristic, but is merely a trajectory of the data between 1999 and 2009. Table 4.8 displays the results for Model 1, which provides estimates of the average API in 1999 for the sample schools as well as the average yearly change between 1999 and 2009. In 1999 the average was 656 and the average change was about 14.2 API points per year.
Table 4.8

*Model 1: Final Estimation of Fixed Effects (with Robust Standard Errors)*

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>API in 1999</td>
<td>655.67</td>
<td>12.60</td>
<td>55.02</td>
<td>0.001</td>
</tr>
<tr>
<td>Average Change in API/Year</td>
<td>14.17</td>
<td>0.87</td>
<td>16.19</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Note:* The outcome variable is API.

Table 4.9 below presents the random effects associated with the intercept (as well as the model error term, \(E\)). Table 4.9 also indicates that there is significant between-school variation in API among schools (\(p < .01\)). The estimated standard deviation in the 1999 API is about 96. This implies that a school at the 15\(^{th}\) percentile would be at about 570, while a school at the 85\(^{th}\) percentile would have an API of about 750.

Table 4.9

*Model 1: Final Estimation of Variance Components*

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>SD</th>
<th>(\sigma^2)</th>
<th>(X^2)</th>
<th>(p &lt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRCPT1, R</td>
<td>95.84</td>
<td>9184.99</td>
<td>7739.32</td>
<td>0.001</td>
</tr>
<tr>
<td>Residual Variation, E</td>
<td>39.10</td>
<td>1529.17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.10 above summarizes model fit and is used to determine whether subsequent models’ variables are jointly significant (this similar to testing the significance of a
change in $R^2$ in OLS (ordinary least squares) (Raudenbush & Bryk, 2002).

Table 4.10

Model 1: Statistics for Current Covariance Components Model

<table>
<thead>
<tr>
<th>Deviance</th>
<th>Number of Estimated Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>14033.06</td>
<td>4</td>
</tr>
</tbody>
</table>

Model 2: Model 2 looks at the impact of a change of principal in a school and the API trend over time, and the effect of a change in principal. This is the first time in the analysis that the interrupted time series (ITS) is examined, which was discussed previously in Chapter 3. Recall that the emphasis is on estimating the effect $D$ and $P$; $D$ is a indicator variable for post intervention, $P$ is the time since intervention. The results in table 4.11 estimate the school’s change in API over time before there is a principal change, the overall effect of the principal change, and the school’s yearly change in API after the new principal starts. In the period pre-new-principal, the yearly change in API is 17.5 API points per year. Changing a principal does not provide a statistically significantly change to a school’s performance level. However, the initial two year post-new-principal time period change in API is approximately 10.7 API points per year (17.5 minus 6.8 equals 10.7). This implies that API growth is reduced over the initial few years after a new principal starts at the school.
Table 4.11

*Model 2: Final Estimation of Fixed Effects (with Robust Standard Errors)*

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>API in 1999</td>
<td>644.92</td>
<td>13.55</td>
<td>47.59</td>
<td>0.001</td>
</tr>
<tr>
<td>Change in Principal (D)</td>
<td>-2.59</td>
<td>3.72</td>
<td>-0.69</td>
<td>0.486</td>
</tr>
<tr>
<td>Marginal effect on Change in API/Year (post principal change)</td>
<td>-6.82</td>
<td>1.25</td>
<td>-5.47</td>
<td>0.001</td>
</tr>
<tr>
<td>Average Change in API/Year (pre-principal change)</td>
<td>17.54</td>
<td>1.2</td>
<td>14.59</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Table 4.12

*Model 2: Final Estimation of Variance Components*

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>SD</th>
<th>σ²</th>
<th>X²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>API 1999</td>
<td>147.86</td>
<td>21862.64</td>
<td>8883.82</td>
<td>0.001</td>
</tr>
<tr>
<td>Post New Principal Slope</td>
<td>9.94</td>
<td>98.77</td>
<td>317.41</td>
<td>0.001</td>
</tr>
<tr>
<td>Change in API</td>
<td>11.88</td>
<td>141.2</td>
<td>1428.85</td>
<td>0.001</td>
</tr>
<tr>
<td>Level-1, E</td>
<td>22.46</td>
<td>504.34</td>
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<td></td>
</tr>
</tbody>
</table>

Table 4.13

*Model 2: Statistics for Current Covariance Components Model*

<table>
<thead>
<tr>
<th>Deviance</th>
<th>Number of Estimated Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>13049.25</td>
<td>11</td>
</tr>
</tbody>
</table>

The results in Table 4.12 indicate that the yearly change in API (change in API), varies
by 10 points, which suggest that schools at the 15th percentile grew at about 7 points, and those at the 85th percentile grew at about 27 points. Post-new-principal variation in annual API growth indicates that a school whose principal’s effectiveness is at the 15th percentile is about grow about -1.3 API points while at the 85th percentile would grow about 22.7 API points. This implies that the differences in a year between a “bad” and “good” principal (also said as 15th percentile verses 85th percentile) is more than a years worth of API growth (which is about 17.5 points). These results indicate that about 28% of new principals are likely to demonstrate improved API performance. The tables also indicate that the variables included in model 2 significantly improve model fit (based on a change in the deviance and the difference in the degrees of freedom, or df, which is the number of values in the final calculation of a statistic that are free to vary), which has a $\chi^2$ distribution.

Model 3 continues the analysis and shows factors related to the principal effects. **Model 3**: Finally, Model 3 tests the principal background and constructs, and specifically the sub-RQs a (management) and b (instruction). It is already known that principals do different things, but I am now attempting to explain the variation in the effect. Model 3 is the synthesis of the new principal’s impact on a school, and it also tests whether there are pre-existing differences in the trend of API related to the background and attributes of principals when they go to a new school. Further, it illustrates what impact all the same principal variables have on the new principal’s API trajectory. It is important to note that the results where p-values are less that 0.05 are statistically significant, and those that are 0.1 to 0.05 could be suggestive evidence of a statistically significant relationship. As can be seen in the table, few of the principal
behaviors and attributes are statistically significant, which is consistent with previous research.

Table 4.14

Model 3: Final Estimation of Fixed Effects (with Robust Standard Errors)
Panel A, Average Change in API per Year

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Construct</th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Change in API/Year (pre-principal change), T</td>
<td>-</td>
<td>17.24</td>
<td>1.17</td>
<td>14.74</td>
<td>0.0001</td>
</tr>
<tr>
<td>Parent Involvement</td>
<td>M</td>
<td>2.28</td>
<td>1.03</td>
<td>2.22</td>
<td>0.028</td>
</tr>
<tr>
<td>Principal Facilitation of Parent Participation</td>
<td>M</td>
<td>0.39</td>
<td>0.56</td>
<td>0.71</td>
<td>0.48</td>
</tr>
<tr>
<td>Principal Influence on Instruction</td>
<td>M</td>
<td>0.42</td>
<td>0.42</td>
<td>1.01</td>
<td>0.316</td>
</tr>
<tr>
<td>Principal Influence of Evaluation</td>
<td>M</td>
<td>0.69</td>
<td>0.83</td>
<td>0.84</td>
<td>0.404</td>
</tr>
<tr>
<td>Management Experience Outside of Education</td>
<td>M</td>
<td>-0.41</td>
<td>1.17</td>
<td>-0.35</td>
<td>0.727</td>
</tr>
<tr>
<td>Gender</td>
<td>BG</td>
<td>1.86</td>
<td>1.27</td>
<td>1.46</td>
<td>0.148</td>
</tr>
<tr>
<td>Race, Hispanic</td>
<td>BG</td>
<td>2.61</td>
<td>1.34</td>
<td>1.95</td>
<td>0.054</td>
</tr>
<tr>
<td>Race, Black of African-American</td>
<td>BG</td>
<td>0.81</td>
<td>2.25</td>
<td>0.36</td>
<td>0.719</td>
</tr>
<tr>
<td>Race, Asian</td>
<td>BG</td>
<td>-3.58</td>
<td>2.34</td>
<td>-1.53</td>
<td>0.128</td>
</tr>
<tr>
<td>Race, Native Hawaiian or Pacific Islander</td>
<td>BG</td>
<td>-8.12</td>
<td>10.41</td>
<td>-0.78</td>
<td>0.437</td>
</tr>
<tr>
<td>Number of Teachers</td>
<td>M</td>
<td>0.01</td>
<td>0.06</td>
<td>0.22</td>
<td>0.824</td>
</tr>
<tr>
<td>Number of Students to</td>
<td>I</td>
<td>0.67</td>
<td>0.23</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Teachers Ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Experience in Years</td>
<td>I</td>
<td>0.08</td>
<td>0.08</td>
<td>1</td>
<td>0.32</td>
</tr>
<tr>
<td>Principal, Highest Degree</td>
<td>M</td>
<td>-3.38</td>
<td>2.82</td>
<td>-1.2</td>
<td>0.233</td>
</tr>
<tr>
<td>Earned, BA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal, Holds Education</td>
<td>M</td>
<td>2.79</td>
<td>1.93</td>
<td>1.45</td>
<td>0.151</td>
</tr>
<tr>
<td>Specialty Certificate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal, Highest Degree</td>
<td>M</td>
<td>5.72</td>
<td>4.15</td>
<td>1.38</td>
<td>0.172</td>
</tr>
<tr>
<td>Earned, PhD or EdD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal PD in Last 12</td>
<td>M</td>
<td>-0.93</td>
<td>3.46</td>
<td>-0.27</td>
<td>0.789</td>
</tr>
<tr>
<td>Months</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Influence on</td>
<td>M</td>
<td>0.67</td>
<td>0.26</td>
<td>2.56</td>
<td>0.012</td>
</tr>
<tr>
<td>Instruction Construct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Support of</td>
<td>M</td>
<td>-0.14</td>
<td>0.37</td>
<td>-0.37</td>
<td>0.709</td>
</tr>
<tr>
<td>Teacher Construct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Support of 1st</td>
<td>M</td>
<td>-1.39</td>
<td>0.78</td>
<td>-1.79</td>
<td>0.076</td>
</tr>
<tr>
<td>Teacher Construct</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Experience Years</td>
<td>M</td>
<td>-0.04</td>
<td>0.1</td>
<td>-0.38</td>
<td>0.703</td>
</tr>
<tr>
<td>Principal Year Wage in $10,000s</td>
<td>M</td>
<td>1.46</td>
<td>0.53</td>
<td>2.76</td>
<td>0.007</td>
</tr>
<tr>
<td>Instructional Breadth</td>
<td>I</td>
<td>0.34</td>
<td>0.2</td>
<td>1.73</td>
<td>0.086</td>
</tr>
<tr>
<td>Construct in Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional Depth</td>
<td>I</td>
<td>-0.28</td>
<td>0.18</td>
<td>-0.15</td>
<td>0.879</td>
</tr>
<tr>
<td>Construct in Hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 M=Managerial Construct; I=Instructional Construct; BG=Background
Table 4.15

*Model 3: Final Estimation of Fixed Effects (with Robust Standard Errors)*

*Panel B, Changes in API Trends Once a New Principal Takes Over*

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Construct</th>
<th>Estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>API in 1999</td>
<td>-</td>
<td>645.98</td>
<td>13.51</td>
<td>47.81</td>
<td>0.0001</td>
</tr>
<tr>
<td>Change in Principal (D)</td>
<td>-</td>
<td>-3.74</td>
<td>2.59</td>
<td>-1.44</td>
<td>0.149</td>
</tr>
<tr>
<td>Marginal Effect on Change in API/Year (P)</td>
<td>-</td>
<td>-5.89</td>
<td>1.07</td>
<td>-5.48</td>
<td>0</td>
</tr>
<tr>
<td>Parent Involvement</td>
<td>M</td>
<td>1.65</td>
<td>1.8</td>
<td>0.92</td>
<td>0.362</td>
</tr>
<tr>
<td>Principal Facilitation of Parent Participation</td>
<td>M</td>
<td>0.23</td>
<td>1.01</td>
<td>0.23</td>
<td>0.821</td>
</tr>
<tr>
<td>Principal Influence on Instruction</td>
<td>M</td>
<td>-0.28</td>
<td>0.74</td>
<td>-0.39</td>
<td>0.701</td>
</tr>
<tr>
<td>Principal Influence on Evaluation</td>
<td>M</td>
<td>0.02</td>
<td>1.55</td>
<td>0.01</td>
<td>0.992</td>
</tr>
<tr>
<td>Management Experience Outside of Education</td>
<td>M</td>
<td>0.55</td>
<td>2.15</td>
<td>0.26</td>
<td>0.799</td>
</tr>
<tr>
<td>Gender</td>
<td>BG</td>
<td>-2.8</td>
<td>2.3</td>
<td>-1.22</td>
<td>0.227</td>
</tr>
<tr>
<td>Race, Hispanic</td>
<td>BG</td>
<td>-6.3</td>
<td>2.57</td>
<td>-2.46</td>
<td>0.016</td>
</tr>
<tr>
<td>Race, Black or African American</td>
<td>BG</td>
<td>-5.89</td>
<td>4.19</td>
<td>-1.41</td>
<td>0.163</td>
</tr>
<tr>
<td>Race, Asian</td>
<td>BG</td>
<td>2.46</td>
<td>4.61</td>
<td>0.53</td>
<td>0.594</td>
</tr>
<tr>
<td>Race, Native Hawaiian or Pacific Islander</td>
<td>BG</td>
<td>19.35</td>
<td>15.7</td>
<td>1.23</td>
<td>0.221</td>
</tr>
<tr>
<td>Number of Teachers</td>
<td>M</td>
<td>0.06</td>
<td>0.11</td>
<td>0.5</td>
<td>0.616</td>
</tr>
<tr>
<td>Number of Students to Teachers Ratio</td>
<td>I</td>
<td>-0.63</td>
<td>0.39</td>
<td>-1.6</td>
<td>0.113</td>
</tr>
<tr>
<td>Variable</td>
<td>Type</td>
<td>Coefficient</td>
<td>Standard Error</td>
<td>T-Value</td>
<td>Significance Level</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------</td>
<td>-------------</td>
<td>----------------</td>
<td>---------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Teacher Experience in Years</td>
<td>I</td>
<td>-0.31</td>
<td>0.14</td>
<td>-2.18</td>
<td>0.031</td>
</tr>
<tr>
<td>Principal, Highest Degree Earned, BA</td>
<td>M</td>
<td>-6.72</td>
<td>5.67</td>
<td>-1.18</td>
<td>0.24</td>
</tr>
<tr>
<td>Principal, Holds Education Specialty Certificate</td>
<td>M</td>
<td>-3.81</td>
<td>3.07</td>
<td>-1.24</td>
<td>0.217</td>
</tr>
<tr>
<td>Principal, Highest Degree Earned, PhD or EdD</td>
<td>M</td>
<td>-9.7</td>
<td>7.39</td>
<td>-1.31</td>
<td>0.193</td>
</tr>
<tr>
<td>Principal PD in Last 12 Months</td>
<td>M</td>
<td>5.5</td>
<td>6.04</td>
<td>0.91</td>
<td>0.364</td>
</tr>
<tr>
<td>Principal Influence on Instruction Construct</td>
<td>M</td>
<td>-1.1</td>
<td>0.47</td>
<td>-2.32</td>
<td>0.022</td>
</tr>
<tr>
<td>Principal Support of Teacher Construct</td>
<td>M</td>
<td>0.15</td>
<td>0.69</td>
<td>0.22</td>
<td>0.83</td>
</tr>
<tr>
<td>Principal Support of 1st Year Teacher Construct</td>
<td>M</td>
<td>2.17</td>
<td>1.43</td>
<td>1.51</td>
<td>0.133</td>
</tr>
<tr>
<td>Principal Experience In Years</td>
<td>M</td>
<td>-0.07</td>
<td>0.19</td>
<td>-0.4</td>
<td>0.693</td>
</tr>
<tr>
<td>Principal Yearly Wage in $10,000s</td>
<td>M</td>
<td>-1.84</td>
<td>0.93</td>
<td>-1.97</td>
<td>0.051</td>
</tr>
<tr>
<td>Instructional Breadth Construct in Hours</td>
<td>I</td>
<td>-1.12</td>
<td>0.34</td>
<td>-3.3</td>
<td>0.002</td>
</tr>
<tr>
<td>Instructional Depth in Hours</td>
<td>I</td>
<td>-0.33</td>
<td>0.31</td>
<td>-1.06</td>
<td>0.294</td>
</tr>
</tbody>
</table>

1 M=Managerial Construct; I=Instructional Construct; BG=Background

Both table panels above are related to the school’s changing performance over time. Panel A, the time before the new principal started; and panel B show the impact once the new principal started. Table 4.14 above summarizes the results for the pre-new principal
factor related to the school’s trend in performance. Schools were shown better or poorer performing in terms or growth.

Table 4.15 shows Panel B, which summarizes factors accounting for the variation in principal effects once they start there.

When looking at the data in Table 4.13, Panel A, it is significant to look at the p-value of the dummy variables (that is, any of the variables that classifies an individual into categories). Here, the coefficient is the actual effect of being in that category compared to the comparison category (that is, for female the comparison is male.). Hispanic principals tend to start at schools whose API growth is about 6.3 points lower than schools where non-Hispanic principals start ($p < 0.016$). For other non-dummy variables, such as teacher experience, or principal wages, the coefficient in the panels is representative of the slope, thus a change in the variable of one unit relates to a one point change in API, and so a change in the API trajectory. The panels show statistically significance p-values for several variables. In Panel A, the variables of teacher experience, teacher control factors, principal wages per $10,000$, and instructional breadth should be noted. The coefficient of teacher experience is -0.31. This means that for each year of average teacher experience at a school, the API was declining .31 points in this example. The p-value for these variables, respectively, are 0.031, 0.022, 0.051, and 0.002.

In Table 4.15, Panel B, the variables of parent involvement activities, student-teacher ratio, teacher control factors, teacher support from principal, and principal wages per $10,000$ are statistically significant. The p-value for these variables, respectively, are 0.028, 0.004, 0.012, 0.076, and 0.007. Noteworthy also, are the suggestive statistical
significance of one non-dummy variable in Panel B. Here instructional breadth is suggestive of statistical significance with a p-value of 0.086. Results imply that for each additional hour of IB API would increase by 0.34 points. Instructional breadth or IB, as defined in Chapter 3, is composite of the hours per week that teachers teach social studies, science, foreign language (not ESL), music, arts, and physical education. This should not be confused with instructional depth or ID, which is a composite of the hours of instruction in English language arts and mathematics only.

Table 4.16

Model 3: Final Estimation of Variance Components

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>SD</th>
<th>$\sigma^2$</th>
<th>$X^2$</th>
<th>p &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>API in 1999</td>
<td>147.7</td>
<td>21816.07</td>
<td>8779.22</td>
<td>0.001</td>
</tr>
<tr>
<td>Post New Principal slope</td>
<td>6.45</td>
<td>41.64</td>
<td>250.88</td>
<td>0.001</td>
</tr>
<tr>
<td>Change in API</td>
<td>11.58</td>
<td>134.19</td>
<td>1335.39</td>
<td>0.001</td>
</tr>
<tr>
<td>Level-1, E</td>
<td>22.58</td>
<td>510</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.17

Model 3: Statistics for Current Covariance Components Model

<table>
<thead>
<tr>
<th>Deviance</th>
<th>Number of Estimated Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>12945.06</td>
<td>59</td>
</tr>
</tbody>
</table>

The results in table 4.16 indicate that the between-school SD in the effect of new principals on API growth is about 6.45. This is conditioned on the principal background.
management and instructional practices. These variables used to account for the between-school variation account for about 35% of the between school variation in new principal effects. In other words, Model 3 accounts for 35% of the variation in new principal effects on API growth.

Figure 4.18

Illustration of API 1999 to 2009 Using Interrupted Time Sequence Model

In sum, it is a novel approach to look at principal effectiveness through the lens of management and instructional behaviors of the principal, and further draping the interrupted time sequence (ITS) analysis as an overlay on the constructs. As has been shown in past literature in the field, this study also shows that most behaviors and attributes have little effect on principal effectiveness. However, it is significant to note that this study has shown that at least one construct from the management behaviors and one construct from the instructional behaviors do have statistically significant value. On the management side, one can see that parent involvement is key to principal effectiveness. Although other studies have come to a similar conclusion, this study broke out parent involvement and participation into two areas, direct parent involvement like
attending Open House, volunteering in the school and classroom, and attending the science fair; and indirect parent involvement where the principal facilitates the parent involvement like providing a parent lounge, bus transportation, and a dedicated staff member for parents. However, only direct parent involvement (PI) has statistical significance, while principal influences on parent involvement (PFPI) does not.

When examining the significance of the instructional constructs, instructional depth (ID) has statistical significance, more so over the broader instructional breath (IB). ID includes English language arts, reading, and mathematics instruction, while IB includes all the other subjects. It can be implied from the outcome data that the schools that dedicate more hours to ID score higher in the API. It bears repeating that a school at the 15th percentile of the instructional depth (ID) construct provides about 12 hr/week (15.91 - 3.7 = 12.21) of English language arts and mathematics instruction while a school at the 85th percentile provides about 20 hours/week (15.91 + 3.7) of English language arts and mathematics instruction. Hence, the high ID school provides about 1.5 hours more per day than the low ID school.

The following chapter will consist of a summary of the findings in relation to the literature reviewed in Chapter 2 and other germane research. In addition, a discussion including implications, conclusions, and recommendations for future studies will be included.
Chapter V: Summary, Implications, and Recommendations

The purpose of this study was to add to find out what the impact is of various managerial and instructional constructs are on the effectiveness of public elementary school principals. Not much literature exists in this area, and it is a novel approach to link California public elementary school data to the nationally-representative sample of the restricted-use data from the 2007-2008 Schools and Staffing Survey, collected by the United States Department of Education’s National Center on Education Statistics (NCES). This chapter includes a summary of the examination of nine constructs created to examine principal effectiveness. Overall, the statistically significant findings are representative of the narrow body of literature, but uncover the necessity for further exploration into this area. Further, the results of this study revealed other aspects of principal effectiveness and leadership that should be considered for future research examining the factors that make principals more effective. The balance of this chapter will comprise of the summaries of the statistically significant findings while weaving discussions of related research, implications, and recommendations. It is important to note that this study is not a cookbook that looks at when it is time to change a principal.

This study answered one main research question with three clarifying sub-questions: Do principals significantly impact school performance during the initial years of their principalship at a school?

a. Is there significant variability in the impact of principals during the initial years of their principalship at a school?

b. Is the variability in effectiveness associated with the impact of school
principal management behaviors, accounting for principal and school concomitant variables

c. Is the variability in effectiveness associated with the impact of school principal instructional behaviors, accounting for principal and school concomitant variables?

**Summary of Results**

This study examined the interactions among nine constructs that, as demonstrated by previous research, are related to one another and can act as proxies for principal effectiveness in public elementary schools in California. The interrupted time sequence model isolates the effect of the principal from the school effects.

The nine constructs are instructional breadth, instructional depth, parent involvement, principal facilitation of parent participation, principal influence on a school, principal influence on staffing and evaluation issues, teacher controls and influences on instruction, the principal’s support of faculty and staff, and the principal’s and school’s support of teachers in their first year of teaching.

The following key findings were identified in this study. Clearly in studying a school’s API results, there is an existing trend in API, the results imply that there is an API trajectory and at some point in future time after the new principal starts, the API will get back on track to that trajectory, but it can take years.

Direct parent involvement was identified as the most significant factor in principal effectiveness. This specifically encompasses a high percentage of parents attending school events like Open House and Back to School Night, a high percentage of
parents attending periodic parent-teacher conferences on the progress of their child, a high percentage of parents attending adjunct school activities like science fairs, math nights, awards assemblies and the like, and a high percentage of parents that volunteer in same way in the school in the classroom or in the school.

Teacher control of instructional and cultural attributes and behaviors of the school highly contributed to the effectiveness of the principal, and thus the school. These attributes and behaviors include teachers being able to select textbooks, being able to select skills to be taught to meet the standards, be able to influence daily and long-term homework given, and having a degree of input on the disciplining of students.

Instructional depth—not necessarily breadth of the instructional program—is a major indicator of principal effectiveness. Instructional depth includes weekly fidelity to the teaching of English language arts (not including ESL) and mathematics. The more a school is effected by a big negative effect, management factors take on a greater significance and do matter more in their effect on a school’s API.

Results indicate that support new of teachers mediates the effect of teaching experience and a veteran teaching staff. In looking at the impact on new teachers when new principals take over, the results indicate that new teachers have a quick positive burst and get back on the API trajectory

The changing of the principal is not a factor that results in positive achievement trajectory for the school. In fact, a change of principal results in a slight statistically significant drop in API points. What I did find, however, is that after three years after a new administrator taking over the principalship, the school was likely to have lost a year of API growth. However, these data don’t allow me to estimate what happens after that.
These findings indicate that identifying ways to increase principals’ job satisfaction, such as increasing principals’ perceptions of administrative support may decrease principal attrition. With a resultant more stable principal cohort in California public elementary schools, achievement trajectory measured by yearly increases in API, will remain on course, rather than the drop that occurs with each change of principal at a school and the years that it takes to make up for that drop.

**Local Education Agency and State Implications**

The educational reform and school effectiveness emphasis for states has been almost completely focused on standards and accountabilities for instructional matters, curricular matters, assessment matters, and teacher quality matters, the implications of this study could provide guidance and the impetus for states to add principal effectiveness metrics to their agendas. To wit, California has been varied in its looking at and the control that they could exert in the two primary principal leadership domains examined in this study, principal instructional behaviors and principal management behaviors (Council of Chief State School Officers, 2009). Marks & Nance (2007) have said that as “states have grown more influential by developing standards for student performance and assessment, school districts and schools have had to yield to considerable autonomy, becoming accountable to the state for a range of student outcomes.” To respond to this, school boards and superintendents often institute their own set of objectives for schools and school leaders. Indeed, in the area of principal qualifications, the Los Angeles Unified School District (LAUSD) has for many years had an internal qualifying examination for principals and assistant principals, based on LAUSD’s 16 dimensions of
behavior for school-based administrators. These behaviors are analysis, decisiveness, delegation and follow-up, development of staff, extra-organizational sensitivity, initiative and innovativeness, instructional leadership, judgment, leadership and influence, oral communication, planning and organizing, written communication, knowledge of curricular concepts and instructional methodology, knowledge of district policy and procedures, knowledge of school management, and knowledge of special education law and practices. These dimensions are generally aligned to the Interstate School Leaders Licensure Consortium and California Professional Standards for Educational Leaders leadership standards. These two sets of standards lay out basic quality standards for school-based leaders (principals and assistant principals, as well as administrative instructional specialists serving in program improvement schools in LAUSD), and only begins to answer the questions of how managerial and instructional behaviors by school principals can effect the performance of the school. Almost not mentioned in these 16 dimensions employed by LAUSD is the question of what and which of these behaviors creates school and principal effectiveness. One must ask if the policy of principal qualifying exams relate to principal performance, it must be carefully examined what they consist of. As in the case of teachers qualified as “nationally board certified” (NBCT), which has been a proxy for national teacher effectiveness, are the principal qualifying exams a proxy for principal pedagogy and content? (P. Goldschmidt, personal communication, May 24, 2011).
NCLB Reauthorization Implications

Based on the findings, this study may have significant impact on policy and procedures for increasing principal effectiveness and the policy of changing principals to improve school performance. Additional research would be necessary in the long-term, however, to further connect the short-term results found here. This is especially noteworthy with the impending reauthorization of the No Child Left Behind act. It is interesting that presently, NCLB has outlined the beginnings of what makes an effective teacher in many ways—by minimum credentialing requirements, minimum teacher professional development requirements, and by reducing class size and teacher effectiveness by supporting states and local education agencies with a funding stream through ESEA Title II funding to reduce class size, use novel and more effective teacher recruitment activities, and a general support for teacher effectiveness. What has been left out of the whole discussion, and what is absolutely required is a nationwide and statewide discussion and action on principal quality and principal effectiveness. ESEA/NCLB does make some mentions to the role and support of principals, it does not focus on the qualifications school leaders need to be an effective principal. There is not now any criteria that ESEA/NCLB contains defining and highly qualified and effective principal, as it does so for teachers. This study identifies behaviors, characteristics and attributes that make a principal effective at the elementary school level. Indeed, a recent survey by MetLife (2010) found that principals who expect to leave the profession are more likely than others to have directors and superintendents who do not ask for their suggestions, do not show appreciation for their work, and do not treat them for their work. Certainly, the nine constructs formed for my survey identified some of these very areas, including the
principal’s support of teachers, and the principal’s influence on the school. The MetLife survey also found that teachers that leave the profession state that they have inadequate support from their principal.

The information from this study, and that of other principal effectiveness reports have the potential to change the nation’s education system. Title II already mandates local education agencies to conduct a needs assessment having to do with teacher effectiveness, the reauthorization of ESEA/NCLB could add in a piece about principal effectiveness, and use the results to inform principal instructional supports, inform principal human resources decisions, inform principal professional development endeavors, and ultimately hold principal and administrator preparation programs accountable for the effectiveness of he principal in their school. The impending reauthorization propositions a key chance to improve and foster principal effectiveness. The federal government spends billions of dollars each year on education, and it’s important that those funds are spent strategically so all school communities have access to effective principals. It’s time for Congress to act and reauthorize ESEA/NCLB, making greater use of the recent and powerful research on principal effectiveness as a control for much-needed reforms.

**Limitations**

This study was limited in the fact that it used specific questions from the Schools and Staffing Survey to measure the constructs of the study. Undoubtedly there are other possibilities and measures that could be studied that may be outside the realm of SASS questions. Importantly, it does not look at the topic of new principal mentoring. It only
measures principals’ perceptions of professional development that they have received in the last twelve months, which may or may not have aspects of mentoring to it. In this study, I have only looked at one-third of the factors that go into running a new school. The other two-thirds of the picture of principal effectiveness may indeed be due to some aspect of principal mentoring. In fact, a number of state education departments and professional organizations have begun to sponsor mentoring programs, in which new principals are paired with veteran principal for guidance and support. In the work, Making the Case for Principal Mentoring (Brown University, 2003), a plan for organizational support, clearly defined outcomes, screening and training for mentors and mentees, and a learner centered focus is described to imply that mentoring programs can reduce professional isolation, boost collegiality, and encourage reflective thinking (Spreck, 1996). By pairing new principals with veteran principals, districts are likely to mitigate some of the stresses that newer principals face, and which in turn may reduce turnover, according to the report. However, it would be informative if the 2007-2008 SASS included survey questions on mentoring so constructs could be created to determine if new principal mentoring increased principal effectiveness in today’s elementary school.

Further, the 2007-2008 SASS data is self-reported by the principals and teachers surveyed; what one teacher believes on how a principal influences the management and instruction at a school, may not be the same for another teacher answering the question.

Given the cross-sectional nature of the 2007-2008 SASS and the limitations of its measures of parental involvement, however, this study is best viewed as informing and exploratory, rather than policy-making. More rigorous tests of the hypotheses, and
particularly about the variables that encompass the parental involvement construct will require more in-depth, localized involvement and participation associations based on data collected directly from parents, rather than just from principals and teachers.

The data does not examine how well principals are prepared to administer a school, nor does the study account for non-traditional paths that principals might acquire knowledge and experience, but for one question that broaches the subject by inquiring as to management experience outside of education. The data also does not look at subject matter of principal’s degrees and preparation. I wonder if a principal with a master’s degree in English, business administration, or education would be a more effective principal. Here, the 2007-2008 SASS data only reveals if a principal has any master’s degree.

A recurring theme that emerged in the literature examined was that simply having structures and processes for administrative decision making in place may not be enough in promoting positive outcomes (Blase & Blase, 1997; Halverson, 2003; Stevenson, 2001). Indeed, the principal plays an important role in setting up the guidelines for these mechanisms, providing a supportive environment and guiding the group in the development and belief in a shared vision and mission for the school, and in the end producing an effective school and an effective principal.

**Future Study and Recommendations**

The domains of management and instruction are just two main domains that were examined in this study. Because the reliability of the nine constructs were all relatively low, further research exploring other principal leadership domains is warranted. Using
surveys with more concrete domain strategies incorporated into them is well advised.

Future research in the area of principal effectiveness and other possible contributory factors that lead to effectiveness that were not covered in the present study can prove to be beneficial. A recommendation for future studies would be research that breaks out specific principal leadership behaviors (in addition to those in the management and instructional arena) to see which specific ones have the greatest affect on a principal. This study could further be expanded by using other populations such as secondary, private, and charter schools to see if similar results are found for these different populations. Directly linking teachers' sense of community to student achievement is another area that could be explored in future research.
References


Stanford Educational Leadership Institute (SELI).


Summary: How leadership influences student learning. Minneapolis, MN: University of Minnesota Center for Applied Research and Educational Improvement (CAREI).


